JANUARY, 1952

Commercial Refrigeration

AND AIR CONDITIONING

DUCT HEATERS FOR COMFORT CONDITIONING

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DO YOU KNOW A PROSPECT WHEN YOU SEE ONE!

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DO YOUR LINES HAVE "GAPOSIS"?

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COOPERATION CAN PAY OFF

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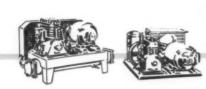
MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF COMMERCIAL REFRIGERATION AND AIR CONDITIONING EQUIPMENT



Yes... with Copelametic, the ACCESSIBLE hermetic, you eliminate 90% of all servicing problems! Now you can realize steady profits with the refrigeration unit which cancels 9 out of 10 of your service calls and is designed for speedy adjustment or repair in the field for the rare servicing needs. Copelametic, in sizes from 1/6 HP. through 7½ HP., combines the best features of all types of condens-

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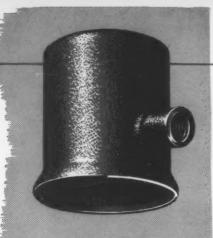
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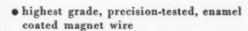


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Alco Solenoids lead the field because we've put our best in the coils...engineered them to give you dependable, trouble-free service. Note these quality features:



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and AIR CONDITIONING . JANUARY, 1952

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Brunner takes care of their dealers. Modern factories, skilled workmen and specialized production lines give you what you want and when you want it.

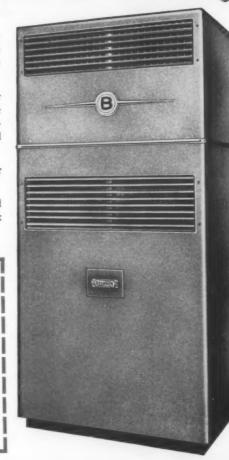


THERE'S MUCH MORE TO BE TOLD so fill in below and our factory sales engineer will stop by with all the facts of why you could well be sharing in this profitable business. We'll send 1952 literature along at once.

CUT OUT AND MAIL

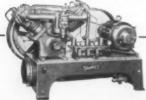
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AIR AND WATER COOLED MODELS - a size and type for every purpose... 1/4 HP. TO 75 HP.

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JANUARY, 1952 . COMMERCIAL REFRIGERATION

nmercial AND AIR CONDITIONING

Carlinda Carlo THE REFRIGERATION INDUSTRY

THIS MAGAZINE has no official affiliation with ANY group, society or association.

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CEA

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Chase Extra Soft Copper Refrigerator Service Tube helps you do a quicker, better job. It's easy to bend because it's uniform in temper. And the Chase crimped end-seal that locks out all dirt and moisture need not be removed until connections are being made.

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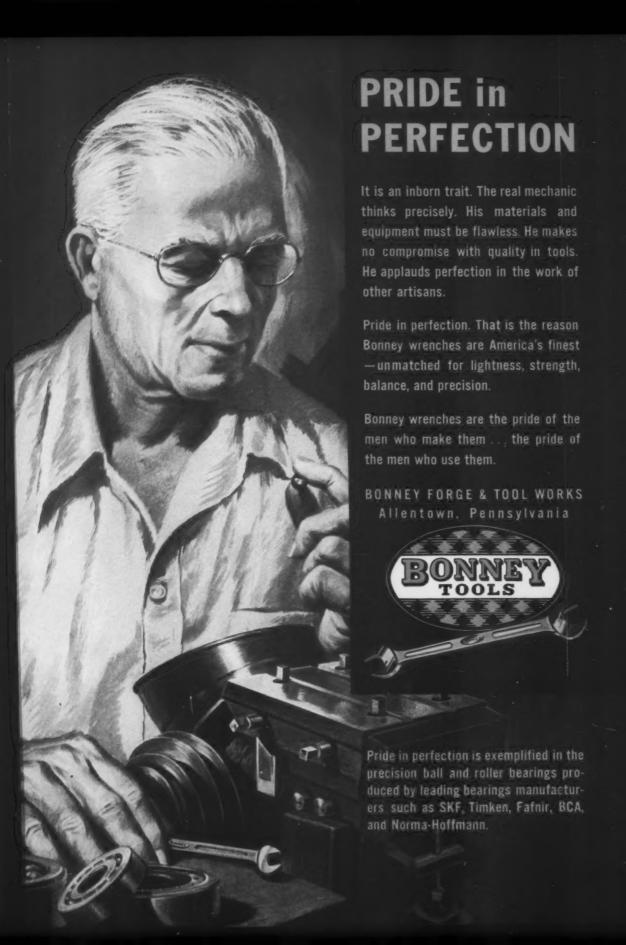
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CITY____STATE

THAT COMMENTS

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in the "Economy Size Package"

When over-pressure occurs in a refrigeration or air conditioning system, it's sound economy to have the instant full pipe-sized relief that BS&B Safety Heads afford. Partial or slow-acting relief is often not enough to protect the lines or equipment.

That's why thousands of BS&B Safety Heads are now in use in the refrigerating-air conditioning field—as primary relief devices, as secondary relief at the valve outlet or beneath the valve to prevent valve sticking or leakage.

BS&B Safety Heads operate with precisionmade rupture discs which rupture at predetermined pressure—with temperature and pressure factors accurately "built-in" the metal of the disc.



SEALED—Low-priced "throw-away" unit with integral disc.



BOLTED—Has renewable disc, quickly, easily replaced.

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are designed for Refrigerating-Air Conditioning installations. Available in a variety of pressures and inlet-outlet connections.

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unbeatable combination
of tried and true
superiorities . . .
Check them all . . . compare . . .
convince yourself



SEALED-IN MOVING PARTS

All moving parts of the Supermetic motor-compressor assembly are fully sealed against moisture and dirt.



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Servel's force-feed lubrication system completely and constantly protects every vital element — bearings, wrist pins, pistons — for extra years of trouble-free service.

flatures where quietness is most desirable.



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High capacity and efficiency are maintained because virtually no oil can enter the refrigerant circuit. Running parts may function without fear of oil "slugging" damage.



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Supermetic motors start easily under any normal operating condition. Ample reserve capacity is provided for in heavy-duty construction. Sealed-in design eliminates manual oiling.



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Designed and built for smooth-running operation, Servel Supermetic is ideally suited to the modern requirements of air conditioning and refrigerated



SIMPLE, COMPACT DESIGN

No troublesome belts, gears, seals or pulleys.
Supermetic is easy to install, fits into any fixture — lightweight design permits "stacking" for remote installations.

plus . . . SERVEL'S 5-YEAR FACTORY WARRANTY*

Protection for you and your Customers.

*Available on steel case models up to 1 H. P. Larger models warranted 1 full year.

Refrigeration men everywhere know that each of these features offers outstanding advantages. The Servel hermetic line includes sizes and models to meet exactly every commercial refrigeration and air conditioning need — 1/s to 5 H.P. There's a wide choice of air-cooled and water-cooled designs.



For literature giving complete information about the new Supermetics write Servel, Inc., Electric Refrigeration Division, Evansville 20, Indiana.

Sewel

Models for every Electric Refrigeration and Air-Conditioning use . . . 1/5 to 5 H.P.

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JANUARY, 1952 . COMMERCIAL REFRIGERATION

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Expensive Equipment
by using
Destructive
Substances?

Chemicals that EAT their way out of Metal, Wood or Plastic Containers are injurious to the very surfaces that they are intended to treat. If a glass container should be accidentally broken, the contents could do untold damage to valuable property!





SOLVEX

LOWERS HIGH HEAD PRESSURE QUICKLY (And May Be Used While Plant Is In Operation)

REMOVES RUST, SCALE, ALGAE And Other Encrusting Matter from Condenser Tubes and Compression Jackets in 1 to 5 Days.

CLEANS SCALE AND CORROSION FROM EVAPORATIVE CONDENSERS, BOILERS, HEATERS, TANKS . . . AND KEEPS 'EM CLEAN!

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DON'T Take A Chance On Investment Losses by Burning Up Expensive

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SOLVEX Is A Very Effective CLEANING AGENT, Manufactured by

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BIRMINGHAM, ALABAMA



that made 3.000.000 starts and stops

Wagner Type RK capacitor-start induction motors are equipped with a Wagner-made centrifugal switch that disconnects the starting winding and capacitor from the line when the motor approaches operating speed. One of these switches, from a 1/3 hp motor, made over three million starts and stops under test-more than the motor in service would make in 85 years if it started every fifteen minutes, day and night!

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AND HERE'S THE MOTOR that fits your needs for applications requiring high starting torque



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Wagner capacitor-start induction motors are your best choice for applications where starting loads are fairly heavy, but which can be brought up to operating speed quickly. They have become increasingly popular for installation on equipment such as mechanical refrigerators, air conditioning equipment, domestic water pumps, motor-driven tools, coal stokers, and on similar fractional horsepower applications.

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sk When you standardize on Wagner Motors you get the advantages of a liberal warranty . . . of nationwide service facilities, with replacement motors and parts available from more than 650 Authorized Service Stations plus 25 Wagner-owned Service Branches, You can choose from a wide variety of types and sizes (from 1/125 to 400 hp). Bulletin MU-185 gives complete information-write for your copy.

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ELECTRIC MOTORS + TRANSFORMERS + INDUSTRIAL BRAKES AUTOMOTIVE BRAKE SYSTEMS - AIR AND HYDRAULIC

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IGH STABILITY

PROTECTED UNIFORMITY



REFRIGERATION OIL

THE NEW . . . IMPROVED . . . ANSUL REFRIGER AT ON OIL . . . IS A RESULT OF THE PERSISTENT SEARCH BY ANSUL CHEMISTS AND REFRIGER TON TECHNICIANS FOR THE FINEST QUAL-ITY REFRIGERATION OIL . . . AT ANY PRICE.

Since Ansul Refrigeration Oil was introduced in 1949 tinued to expand. In only two short years Ansul one of . its acceptance by refrigeration men has con-the leading refrigeration oils sold exclusively through Refrigeration Wholesalers.

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NOTE THESE OUTSTANDING ANSUL OIL FEATURES

- *Lower floc point.
- *50% lower wax content.
- Moisture ANSUL CON-TROLLED minimum.
- *Lower pour point.
- Rightly checked for high stability.
- *Lowest affinity for mois-
- · New low price.
- · Available in quart, 1-gallon and 2-gallon cans; also in 5-gallon and 55-gallon steel containers.
 - *Improved features

Write for information on Technical Builetins available to the Refrigeration

BUY IT AT THE NEW LOW PRICE. Use it for more dependable, trouble-free lubrication.

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and AIR CONDITIONING . JANUARY, 1952

11

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- Research Laboratories.
- · Commissaries,
- Storage Plants— Food, Biological, Chemical



-through 40 tons



Evaporative Condensers, Cooling Towers and Air Handling Units to match



Central Type 10-15 ton

The broad CURTIS line of Air Conditioning, Temperature and Humidity Control equipment enables CURTIS distributors to quote and get many of these installations.

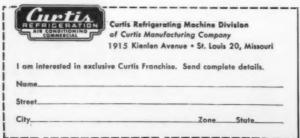
With Condensing Units through 40 HP . . . Evaporative Condensers . . . Cooling Towers and Air Handling Units to match, CURTIS distributors can handle more jobs, make greater profits.

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Package Type-

98 years of Successful Manufac	turing
Experience."	
"Built-In" "Built-In" Curtis Equipment	



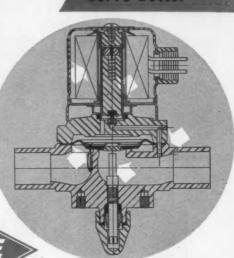
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A SERIES OF DEPENDABILITY FEATURES

Made Better to Serve Better

No. 4 DURABILITY

In all cases, the materials used in the manufacture of JE SOLENOID VALVES are the best available for the job. The valves for ammonia and brine service have semi-steel bodies made under rigidly controlled foundry conditions. The valve bodies for all other services are made of highest grade bronze. All internal parts are of stainless steel. In short, the best obtainable materials are used—regardless of cost.



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Have 5 Major Features of Dependability

- 1 TIGHT SEATING No bubble tolerance
- 2 SIMPLICITY Only two moving parts
- 3 LONG LIFE-Cool Coils
- DURABILITY All corrosion-resistant materials
- 5 OPENING PRESSURE DIFFERENTIAL—
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May we submit samples for your test and approval? Write today for details.

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CONTROLS DIVISION

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Kass Realty Company Building in Washington, D. C., is completely air condi-tioned, using Baker compressors equipped with reliable Allen-Bradley Bulletin 709 Automatic Starters.



Why are Allen-Bradley automatic starters so popular for refrigeration and air-conditioning service? . . . Because they are trouble free. Only ONE moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

No contact maintenance . . . Allen-Bradley cadmium silver alloy contacts never need cleaning, filing, or dressing.

Dependable overload relays . . . Allen-Bradley thermal relays are accurate and always dependable ... even after long service.

The Allen-Bradley trademark stands for millions of trouble free operations.

> Allen-Bradley Co. 1340 S. Second St., Milwaukee 4, Wis.

ALLEN-BRADLEY SPECIAL REFRIGERATION CONTROL UNITS

Allen-Bradley offers a wide line of air-conditioning and refrigeration controls - pressure and temperature controls, manual and automatic starters, and special refrigeration control units. The two units at the right show Allen-Bradley special refrigeration control units consisting of solenoid starter, high pressure cutout, thermostat, and manual starting switch. You can install A-B controls and forget them.



Bulletin 709 Size 2



Bulletin 709 Size 1

ALLEN-BRADLEY SOLENOID MOTOR CONTROLS
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4 WAYS G-E WHOLESALERS HELP YOUR BUSINESS



ONE-STOP SERVICE. You get efficient, over-the-counter service on all refrigeration needs—G-E condensing units, renewal parts as well as refrigerant gas, controls, tubing, valves, tools. No need to make several calls...one stop and you're in business:



EXPERIENCE AT YOUR CALL. Ask your G-E Parts Depot counterman to help solve those pesky installation problems. He knows how to select the right units for the job, where to look for trouble-spots in an installation, what controls are needed.



AMPLE STOCKS. You'll find G-E open-type units from ¼ to 10 hp, G-E hermetics from ½ to ½ hp, G-E compressor bodies from ½ to 10 hp, and a full line of renewal parts. Let G. E.'s famous name and performance record help you sell your customers.



TIME SAVED. No longer need you and your customers suffer that exasperating wait for "factory delivery." Anywhere in the U. S., your G-E Parts Depot is usually as close as an easy ride in your repair truck, at most, within one day's express travel.

Write for FREE data!

You can put your confidence in-

GENERAL



ELECTRIC

General Electric Company Air Conditioning Division, Sec. CR-15 Bloomfield, New Jersey

Tell me the location of the G-E Parts Depat nearest me . Please send me literature on G-E Open Units . G-E Hermetics . G-E Re-

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EASY-FLO and

Fast, low-cost

example



For over 20 years EASY-FLO and SIL-FOS have been favorites in the Refrigeration Industry, particularly for joining pipe and tubing. That's because these low-temperature silver brazing alloys consistently produce strong, permanently leaktight joints, and do it at top speed and bottom costs.

So it is not surprising to find the Betz Corp., Hammond, Indiana-a leading manufacturer of cooling and refrigerating coils - using these alloys. They make a wide variety of coils, all formed of heavy-wall seamless copper tubing—and they braze all return bends with EASY-FLO while miscellaneous connections are joined with SIL-FOS.

In joining metals, you always want strong, lasting joints-and you want them in the fastest possible time with the least amount of labor, because that means low

And that's precisely why you want to braze with EASY-FLO and SIL-FOS wherever and whenever you can—on defense production as well as domestic production. Fast, low-cost metal joining is inherent in the make-up and properties of these low temperature silver brazing alloys.

This is a proven fact. Thousands of manufacturers have done it on an amazing variety of ferrous, nonferrous and dissimilar metal assemblies. All it takes is proper joint design and alloy application plus a little production-wise planning of the job.

A Brazing Expert is at your call

Without cost or obligation we'll send to your plant one of our experienced Field Service Engineers. He can tell you if, where and how you can use EASY-FLO and SIL-FOS to advantage. Be assured he will make no recommendation he cannot justify on the basis of better results for you. You can't lose by having him look over your metal joining work. Just contact our nearest office or dealer and say when.

24 PAGES OF USEFUL BRAZING FACTS IN THIS FREE BULLETIN 20

If you need leak-tight joints there's no simpler, faster, more economical way to get them than with EASY-FLO and SIL-FOS. Bulletin 20 tells why and bow. Write for a copy today.





ANDY & HARMAN

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MILLS CONDENSING UNITS LARGE and SMALL CAPACITIES





Chosen again and again for their long-life dependability, Mills Compressors and Condensing Units, from the 10 h.p. down to the ¼ h.p. capacity, give you a range to meet the big majority of all refrigerating and air conditioning requirements.

You'll find no skimping-no over-rating. Because of proven performance, experienced engineers and service men know they can count on Mills Units long-life performance. They cost less per year!

MILLS INDUSTRIES, Incorporated 4100 Fullerton Ave. Chicago 39, Illinois



Bulletin 204-1

MILLS CONDENSING UNITS

CAPACITIES FROM 10 H.P. DOWN TO 1/4 H.P.







This huge passenger liner is assured of airtight refrigeration by the *special*, patented construction of the weather-stripping used on refrigerator doors . . . INNER-SEAL*.

INNER-SEAL's made of live sponge rubber, which forms a perfectly tight, yet resilient, seal. Slaminner-seal, it bounces back to shape. Does not mat. Will not crack. The woven spring-wire flange is so flexible it fits corners like a glove. Final protection is afforded by its waterproof neoprene coating which resists sub-zero or tropic temperatures, grease, oil, sunlight and abrasion.

From giant installations like the S. S. United States to compact industrial uses like this refrigerated display case . . . INNER-SEAL has no counterpart.

FREE samples . . . data on sizes, shapes, colors, scores of uses.

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STROBOSCOPE OF "JUMP TEST" PROVES

SEALS TIGHTER, LASTS LONGER!

Springy live rubber is the reason.
Action-stopping stroboscopic
photos prove it. Both ends of a
strip were pressed together, then
released . . resulting in the
lively spring action you see.



INNER-SEAL Tive Rubber

STAYS LIVELIER LONGER ... SAVES MORE FUEL

BRIDGEPORT FABRICS, INC., BRIDGEPORT 1, CONN Inc., Los Angeles, Calif.

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LETTERS

Hardware Firms Listed

EDITOR

Will you please advise who makes walk-in refrigerator door closers?

SCHUMACHER REFRIGERATION Co. Stamford, Conn.

Walk-in refrigerator door closers are manufactured by the following firms: Grand Rapids Brass Co., Grand Rapids, Mich.; National Lock Co., Rockford, Ill.; Arcade Mfg. Div., Rockwell Mfg. Co., Freeport, Ill.; Kason Hardware Co., Brooklyn 6, N. Y.; Polar Hardware Co., 1631 South Michigan Ave., Chicago 16, Ill.

Who Makes Ice Cube Crushers?

EDITOR:

Can you give me the names of manufacturers of ice cube crushers?

MARCEL A. GOYETTE

Standard Refrigeration Portsmouth, R. I.

Ice cube crushers are made by Belt-Ice Corp., Seattle, Wash.; Freshmaster Corp., New York, N. Y.; International Products Corp.. Los Angeles, Calif.; Refrigeration Engineering Corp., New York, N. Y.; Service Devices, Inc., New York, N. Y.; Wingate Corp., Charlotte, N. C.

Reach-In Dairy Cases

EDITOR:

Can you furnish me with a list of manufacturers of reach-in dairy cases?

BAKER REFRIGERATION & APPLIANCES
Zion, III

A representative list of this type of equipment is: Bailey & Perkins Co., Utica, Mich.; Coldin Cabinet Co., Inc., Bronx, N. Y.; Evans Mfg. Corp., Mt. Vernon, N. Y.; Federal Refrigerator Mfg. Co., Waukesha, Wis.; Fogel Refrigerator Co., Philadelphia, Pa.; Jordon Refrigerator Co., Philadelphia, Pa.; Koch Refrigerators, Inc., North Kansas City, Mo.; Minneapolis Show Case & Fixture Co., New Richmond, Wis.; Penguin Sales, Detroit, Mich.; Puffer-Hubbard Mfg. Co., Grand Haven, Mich.; Sherer-Gillett Co., Marshall, Mich.; Super-Cold Corp., Los Angeles, Calif.; Tyler Fixture Corp., Niles, Mich.; Viking Refrigerators, Inc., Kansas City, Mo.; Warren Co., Inc., Atlanta, Ga.; Weber Showcase & Fixture Co.,

HENRY

LINE VALVES really give you something extra

They give more dependable service because of advanced field-proven design and construction as well as patented features.

PACKLESS VALVES FOR FREON with Exclusive Balanced-Action



STANDARD TYPE

Ball check in balancing channel permits diaphragm inspection and replacement with valves under line pressure. Sizes, ¼" thru 5%" flare; ¼" thru 1%" O.D. Solder, ¼" thru 1" F.P.T.



BLUE BANTAM TYPE

Same as standard Balanced-Action valve except that diaphragms cannot be inspected or replaced under line pressure. Size ¼" thru ½" flare and O.D. Solder.

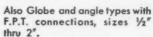




Globe and angle types with solder connections, bolted bonnets, sizes 1/8" thru 51/8" O.D.

SEMI-STEEL WING CAP TYPE

With bolted bonnets and square companion flanges. Furnished with brass tailpieces (O.D. Solder) 1 1/8" thru 5 1/8" or with steel tailpieces for welding to pipe, sizes 11/4" thru 5".







Compact and strong with self-aligning stem disc. Sizes (F.P.T.), screw bonnet: $\frac{1}{4}$ " thru 1", bolted bonnet $\frac{1}{4}$ " thru 2"—with flange connections $\frac{1}{4}$ " thru 5".



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Valves—Driers—Strainers—Control Devices and Accessories for Refrigeration, Air Conditioning and Industrial Applications

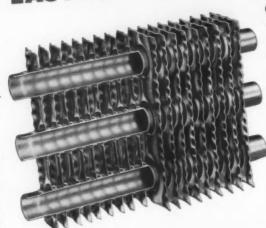
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All TOP Performers!

SELECT M. Quay

RIPPLE-FIN CONSTRUCTION ASSURES LASTING CUSTOMER SATISFACTION



Only McQuay gives you Ripple-Fin surface—the product of years of research aimed at producing the ultimate in heat transfer for any weight of metal. High efficiency is assured by forcing the air to follow an ever-changing direction of flow in passing through the coil. Thus the air repeatedly contacts the coil surface to give maximum contact time, maximum contact velocity, and a resultant optimum heat transfer.

With this advance in design, McQuay retains the staggered tube and the McQuay rippled edge features so well known in the industry, and which contribute greatly to higher heat transfer, construction ruggedness, and eye appeal.



HEATING - AIR CONDITIONING - REFRIGERATION

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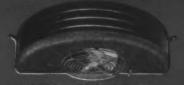
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JANUARY, 1952 . COMMERCIAL REFRIGERATION



TWO-WAY UNIT COOLER

Available in two sizes—90 Bit per degree T.D. and 135 Bit per degree T.D., designed for the job where space is at a premium.



RADIAL UNIT COOLER

Seven sizes with capacity range from 200 to 870 Ste per degree LD, tryled for minimum helighth and depth to provide more head room.



PACEMAKER UNIT COOLER

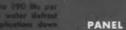
17 line from Y14 to 2300 live per degree
T.D.—general "low-side" applications in walk
in coders, book bars, reaching salvings, etc.

REFRIGERATION



MULTI-LOUVRE COIL

Six stock sizes for applications requiring highumidity and slow air movement, such as med coolers, floral boxes, etc.



6 sizes—from 80 to 3.55 Btu per de gree T.D.—for wal mounting in beverage coolers, reach in cobinets and other

EVAPORATIVE

3 ½, 5 and 12 Ton nominal ratings using bare tube coils—for water conservation in areas where water supply and sewage facilities are limited.



5,7 % and 10 Tens with specially designed deck surface for economical condenser water cooling and other similar applications.

PROVED AND PREFERRED

A Complete Line!

Forced air coolers for high and low temperature applications; Gravity Type Coils for walk-in coolers, display cases, etc.; ZerOpak Speed-Tunnel Freezers for locker plants, markets and other freezer applications; Evaporative Condensers for conserving water in refrigeration applications; Cooling Towers for economical cooling of condenser water and other special applications.



COOLING TOWERS

Capacity range from 7050 to 3000 Bry per degree T.D. in four sizes— The combination sharp freezer and low-side unit is suitable for all types of low temperature storage and sharp

LOW TEMPERATURE UNIT

ZEROPAK





What the serviceman should know about "VIRGINIA" REFRIGERATION products

"EXTRA DRY ESOTOO"

(B.P. +14°F.)

"Extra Dry" is the refrigeration grade SO₂ that service and maintenance engineers have endorsed for more than 20 years. Comes in all popular cylinder sizes.

"V-METH-L" (B.P. -10.7°F.)

Virginia Methyl Chloride is made specifically for refrigeration use. Low moisture content, low acidity and narrow boiling range recommend "V-Meth-L" for the most exacting requirements.

"FREON" REFRIGERANTS

"FREON-113" "FREON-114" "FREON-11"
Boiling Point Boiling Point Boiling Point 117.6°F. 38.0°F. 74.7°F.

"FREON-12" "FREON-22"
Boiling Point Boiling Point —21.6°F. —41.4°F.

Virginia Smelting Company is distributor for "Kinetic" Chemicals "Freon" Refrigerants and for "Suniso" Refrigeration Oils.

TO CHARGE A SYSTEM, USE REFRIGERANTS THAT ARE CONSISTENTLY PURE, CONSISTENTLY SURE

"VIRGINIA" CAN-O-GAS—THE MODERN METHOD OF CHARGING A SYSTEM

Handy, throw-away, no-deposit can. The perfect way to charge hermetic systems, water coolers, beverage coolers, vendors. Available filled with "Freon-12" (15 oz.) or "Freon-114" (16 oz.). Each can is precision-filled to make certain the refrigerant is clean and dry. Can-O-Gas features a simple, practical clip-on opener which fits small valves designed for

this use. Slip it on the can; turn to puncture seal. It's leakproof, foolproof.







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JANUARY, 1952 . COMMERCIAL REFRIGERATION

YOU GET THE GREATEST SERVICE FROM

Prest-O-Lite CYLINDERS

FOR REFRIGERANT GASES



HERE'S WHY:

1 Superior Quality

You're assured the best in cylinder design and production because of an unsurpassed "know-how" gained through more than 35 years of experience and skill by the largest manufacturer and user of compressed gas cylinders.

2 Longer Life

Many extra years of trouble-free life—and added resistance to denting, piercing, and corrosion—result from the stronger walls and durable construction.

3 Lighter Weight

Transportation costs are reduced, and the cylinders are easier to handle, because there are no extra-thick sections that only add weight without adding strength.

4 Uniform Wall Thickness

This advantage is worth special consideration. Unusually close tolerances in wall thickness mean greater overall protection.

5 They Surpass Code Requirements

You know sturdy PREST-O-LITE Cylinders will never let you down because they're made, tested, and inspected not only in accordance with I.C.C. Specifications, but they also undergo our own rigid tests far beyond standard requirements.

35-lb. capacity

Prest-O-Lite cold-drawn cylinders for refrigerant gases are available in 5-lb. (rounded bottom or with foot ring), 10-lb., 25-lb., and 35-lb. sizes. You can have 50-lb., 100-lb., 150-lb. or special sizes and styles made to your specifications. Save more money in the long run by using the finest cylinders. Just mail the coupon today for complete information.

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

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Please send full information about PREST-O-LITE Cylinders for refrigerant gases.	
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COMPANY	
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When your customers see the facts and figures, your selling job virtually disappears. With precision-made, de-pendable Bendix-Friez instruments you can demonstrate with on-the-spot readings or recordings exactly how much and where your customers need temperature and humidity control for maximum comfort in the home, maximum efficiency in industrial operations. Bendix-Friez instruments are built to U. S. Weather Bureau standards by the world's oldest and largest manufacturer of fine meteorological equipment. Write for complete information.



Hair-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4" high, 6" wide, 21/2" deep—desk or wall mounting. FRIEZ INSTRUMENT DIVISION of

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Over the

Wholesalers' Problems Today

By A. B. Schellenberg

SOME OF you may have seen the recent cartoon of the workman just home from the job, his lunch box on the floor, hanging up his coat while his wife, who has just opened his pay envelope, comments: "Unemployment insurance, health insurance, social security, pension fund-we got security Herman, but what do we do for groceries?"

Many a small businessman, the refrigeration wholesaler among them, is in very much the same kind of a spot. On paper many of you are fairly wealthy men. On paper you are making money and each year is better than the previous one.

However, on a cash basis it's an entirely different story. You are finding it increasingly necessary to live relatively frugally and spend close to your belt if you want to avoid drawing on your savings. When asked by your wife, like the woman in the cartoon, "what do we use for gro-ceries?" about all you can say is: "But look at the estate we are building," and show her those figures on paper.

Most of you have enjoyed an increase in business over the past several years and your companies are growing and expanding. That means increased inventories, increased open account sales, new and

larger buildings and more equipment -in other words, more money invested in the business. High taxes on profits which must be paid almost as soon as the profits are made and in cash, together with the present inflation are proving a serious drain on working capital. There was a time when a man could re-invest his savings in his own growing business without retarding a commensurate rise in his own living standard.

If your business is about the same as the average refrigeration wholesaler's, last year your sales increased 21%. To handle this increase in your sales you had to increase the amount of working capital by six times the profit you made on that sales increase. The average figures indicate that, exclusive of salaries drawn, almost all of the profit you made last year had to be plowed back into the business to accommodate the sales increase.

Working Capital a Problem

It is obvious that running a growing business in the face of inflation and high taxes requires ever increasing working capital and presents a real cash income problem for the small businessman. Large companies receive government loans and advanced payments of one sort or another that help them meet their tax cash requirements.

Large corporations can raise working capital in a number of ways not readily available to small business firms. This is probably as it should be -remember, we can't make the little fellow taller by cutting off the big fellow's legs. Be that as it may, the small, growing business must raise

Mr. Schellenberg's paper on "Problems Confronting Wholesalers at the Present Time", was presented at the recent meeting of Refrigeration Equipment Wholesalers Association in Chicago. A former president of Refrigera-tion Equipment Manufacturers Associa-tion. Schellenberg is now a partner in United Refrigeration Co., San Antonio refrigeration suppliers wholesaler firm.



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With a few twists of the wrist, attach the sensitive NCG Leak Detector to the new Sod-R-Braze torch handle and you're ready to locate refrigerant leaks with pinpoint accuracy. With the same ease, unscrew the Detector, attach a tip and you've got a soldering and brazing torch that beats any you ever used. Outfit, including "NB" cylinder with 40 cu. ft. of high-heat acetylene gas, is easily portable, particularly so with NCG's new "Carryall"



NATIONAL CYLINDER GAS COMPANY
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what new working capital it can and, most important, must get the most out of its current working capital.

This discussion is limited to two major facets of our problem as successful small businessman—working capital and taxes. I am assuming, of course, that you are all operating your businesses at a fair profit. If you are operating at a loss—you have no tax problem and a solution to your working capital problem will be very temporary and costly to you and others. You may not be making as much profit as you should be—but that is another subject for another time.

What Is Working Capital?

Let's take a look at the working capital problem. What is Working Capital or Invested Capital? It is the total of your Inventory, Accounts Receivable, Cash, Fixed Assets—that is your building, if you own one, equipment, etc.—and those Miscellaneous items such as deposits, advances to employes and the like.

Now all of this invested capital is not yours or your stockholders' or partners'. The outside capital in your business consists of your Accounts Payable and money you have borrowed from banks or other sources. The difference between the total invested capital and this outside capital is what you and the owners of your company have tied up in the business.

Outside Funds Limited

The amount of outside capital usually available for use in your business is relatively limited. You can't expect your suppliers to carry you for long—chances are many of them also have a working capital problem. I'm sure that few of you any longer have that old fashioned fear and awe of banks and that it isn't necessary to dwell on the desirability of establishing a good honest, facts-on-the-table business relationship with a good bank.

Under the current situation we must get the most out of our working capital, for every dollar that we do not actually require tied up in our business is a dollar available for living cash. Now, of course, it is obvious that one way to get more income is to increase sales and profits—but bear in mind the working capital problem rides right on up proportionately with the increase in sales and taxes due disproportion-

ately with increased profits.

How can we get the most out of working capital? Most of the capital tied up in our wholesale business is in accounts receivable and inventory. What do your past due accounts average every month? Determine the monthly average of your accounts receivable and of your open account sales—the difference between them will give you a pretty good indication of some of the excess working capital tied up in your business.

What the Figures Show

Let's assume that for the past year your month-end accounts receivable averaged \$108,000 and your sales \$60,000 a month. If your terms are 30-day net, the difference of \$48,000 is past due. You have \$48,000 more invested in your business than you should have.

Of course, as a practical matter you know and I know that there are few, if any, businesses selling on a 30-day basis who do not have some continuing past due accounts. But wouldn't it be swell if you could have just one half of that \$48,000 in past due accounts in cash instead of on your books? I believe that you can reduce your accounts receivable without any material effect upon your sales volume or profit. In fact your profit might even increase.

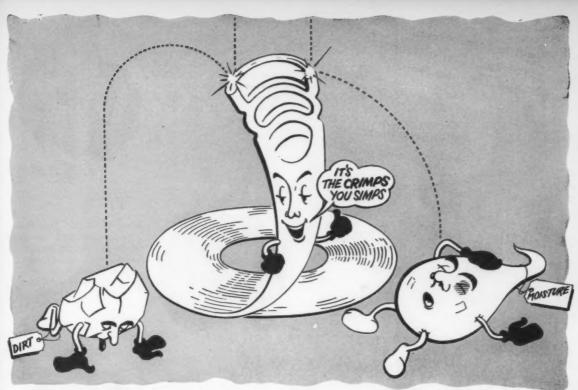
The Past-Due Problem

Recently I examined the accounts receivable situation of several whole-salers. I picked out the slowest accounts and on averaging discovered that a mere handful of customers were responsible for over 58% of the past due accounts but they were only responsible for 24% of the sales.

You probably haven't had the cash lately to make many outside investments—you sometimes feel that you have too much invested in your own business and yet I'll be willing to bet that over the year you have been a sizable investor in some 15 or 20 businesses—slow paying customers of yours. In effect, you have been stockholders in these companies—taking all the risk, receiving none of the profit, and having no voice in the management of your investment.

(To be continued in next issue)

BUY FROM YOUR REFRIGERATION WHOLESALER



These Pests haven't a chance of getting into...

REVERE



refrigeration tube

Dryseal gives dirt and moisture the bounce at the factory. A special, precise, mechanical doublecrimp seal is made at each end of the tube when it is manufactured. This means Dryseal is delivered to you bone-dry and free from dirt. The seal is made in such a way that the diameter of the tube does not change, which permits Dryseal to be passed through any opening large enough for the tube itself.

While Dryseal may be stubborn about keeping out

dirt and moisture it's a soft touch when it comes to bending. The soft temper of the copper used in Dryseal allows you to make the most intricate bends by hand. And its ductility and soft temper make it extremely easy to flare for compression fittings without danger of splitting. Economical tube sizes range from 1/4" to 3/4" O.D.

And, for your greater convenience we have just recently brought out Dryseal in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal . . . is easier to handle, light weight, economical.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801 230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.-Sales Offices in Principal Cities, Distributors Everywhere

SEE "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

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Want to control multiple refrigeration systems with only one switch?

"Mean-to-Handle" water cooled jobs?

Tough defrosting job? Series 246 Water Valves are zoned to keep water out of sliding parts... are built in threaded and flanged styles for all refrigerants and in sizes from 3/1" to 21/2".





Penn Series 325 Time-Pressure Defroster automatically varies the defrost period to satisfy load conditions... eliminates seasonal adjustments... avoids unnecessary shut-down time.

GET YOUR ANSWER

That's right! The correct answer to your refrigeration control problem is ... PENN.

 $^{\circ}$ As in most other products, there is also a big difference in automatic controls. And once you try PENN controls you'll learn that their performance on the job is the strongest recommendation for using PENN on every commercial refrigeration system.

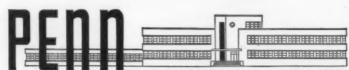
In the complete PENN line, there is a type and model to fit your exact needs. A few types are illustrated here... there are many more. Take the first step in trying these better controls. Get your free copy of PENN's condensed catalog and price list. Ask your wholesaler or write Penn Controls, Inc., Goshen, Indiana. Export Division: 13 E. 40th Street, New York 16, N. Y., U. S. A. In Canada: Penn Controls Limited, Toronto, Ontario.

Series 275 Oil Protection Control with built-in Time-Delay Switch for use on all pressure-lubricated refrigeration compressors.





Penn Series 270 temperature and pressure controls have direct reading calibrated scale which shows both cutin and cut-out points.



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

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BTI NEWS · LAWS · TRENDS

REFRIGERATED MILK VENDERS could help make possible the sale of 510 million pounds of fluid milk yearly, over and above present sales volume, according to a study completed recently by Hugh L. Cook of the University of Wisconsin's Department of Agricultural Economics. The report is now being studied by U. S. Department of Agriculture dairy specialists. The Cook report quotes the president of a major milk vending company to the effect that the United States could readily absorb more than 100,000 milk vending devices. Sales of milk through refrigerated vending machines run up to 60% greater than regular over-the-counter sales do, surveys show. The study suggests that the dairy industry give the vending enterprise all possible support in a promotional way and not depend on specialized vender operators and equipment manufacturers to do the job alone.

HOW MUCH IS A BILLION? In these days, when the government tosses billions of dollars around with what seems gay abandon, it is difficult to realize the amount of money the taxpayers pour into the coffers of the nation to meet our needs. How much is a billion dollars? Well, look at it this way: If, in the year 1 A.D., you started to give away a billion dollars, at the rate of \$1,000 a day, today (and you should live so long!) you would still have enough from that billion left to continue to give away \$1,000 per day for nearly another 800 years, or until the year 2739 A.D. That's a billion dollars—just one billion dollars, that is.

CHEWING GUM AND AIR CONDITIONING are "partners" in a production way. Gum-lovers, of which the refrigeration and air conditioning industry has its full share, may be pleased to know that, without air conditioning, quantities to supply the modern market probably wouldn't be possible. In modern plants, ingenious machines can wrap as many as 300 sticks of chewing gum a minute, provided the atmosphere isn't too humid. With increasing humidity, the gum gets sticky and the machines get in an awful mess. Installation of air conditioning allows the gum production to go ahead at its regular pace, however hot and humid the outside atmosphere may be.

A BIG MARKET FOR REFRIGERATION equipment in the alfalfa dehydration industry in Nebraska, to conserve the vitamin content of the dried product, has been indicated by the State Resources Board in a recent report. The Nebraska industry is 16 years old, the report stated. The state now leads the country in total production, with an annual output of between 200,000 and 250,000 tons of alfalfa meal, the report asserted. And although no figures are given as to the extent of the market for refrigeration equipment, in dollar valume, our presumption would be that that ain't hay, either.

RESEARCH WORK IN THESE TIMES is anything but the "ivory tower" that most of us who operate at what we often erroneously call the practical level may believe it to be. For example, at a recent meeting of Radio Corp. of America scientists, David Sarnoff, RCA's board chairman, listed as one of his "wants" from RCA researchers an electronic air-conditioner, operating possibly through the action of electronics in solids, and having no moving parts. And Benson Ford, vice president of Ford Motor Co., in a talk before Detroit SAE members, called for the development of a substitute for copper. Looking around today at some of the products research has made possible in our everyday lives, does anybody want to bet that either—or both—of these "wants" won't be realized some day? Things more "impossible" than this have happened.

CONTROLLED ATMOSPHERE—air heating in winter, air cooling in summer, and air cleaning the year 'round—is one of the outstanding features of Ballin Homes, a distinctive new development in Hewlett Harbor, Long Island, N. Y. The Westinghouse Precipitron electronic air cleaner was stressed as a top selling point in these \$30,000 homes and it clinched many a sale. When wives learned their home would be kept free of dust and dirt as well as being cool, that turned the trick.



A properly installed duct heater can convert a packaged air conditioner into a yeararound system with a minimum of cost and trouble. Here's how one contractor did it.

THERE'S more than one way to combine heating facilities with packaged air conditioning equipment to provide a year-around system, but usually there is one particular way which is most satisfactory for each individual application.

In the case of the Shoedinger Funeral Home in Columbus, Ohio, a gas-fired duct heater provided the ideal answer.

The Shoedinger establishment had recently erected an addition to its original building, and this new construction added a somewhat different twist to the air conditioning job. But it proved no stumbling block to Columbus Refrigeration Co., local York distributor.

As the job was outlined, two rooms -each measuring approximately 30

feet long, x 15 feet wide-had to be cooled. One of these rooms was in the original building, however, and one in the new addition. Heat for the room in the old building already was supplied by the home's central heating plant, but for the new room it was necessary to provide heating as well as cooling.

Solution to the problem, as arrived at by the contracting firm, was to install a 5-ton York packaged air conditioning unit in the garage of the funeral home.

Ductwork then was run to a single outlet register in each of the two rooms to be cooled.

To provide the required amount of heating for room in the funeral home's new addition, a Janitrol ducttype gas-fired heater was installed in the duct leading to that room. This heater was vented through the garage

The whole set-up is controlled by Minneapolis-Honeywell controls in such a way as to provide the proper amount of cooling in the summertime and adequate heating during the winter months.

Another possible approach to this same problem, under normal circumstances, would have been the installation of a steam coil in the air conditioning unit itself, but in this case no steam was available for this purpose.

The duct heater provided a very practical and satisfactory alternate solution, and proved once more that ingenuity is a priceless ingredient in cooling contracting.

MORE THAN 1,000,000 COMPRESSORS have been charged with Suniso in the past 15 years by Copeland Refrigeration, one of the oldest manufacturers in the industry. From drums stored over the charging board, Suniso is fed into glass tubes which hold the correct amount of oil for each type of compressor coming down the line.

80,000-HOUR TEST PROVES THE VALUE OF SUNISO OIL

Copeland Refrigeration, a pioneer in the manufacture of compressors, and an exclusive user of Suniso Refrigeration Oils for the past 15 years, recently completed a 10-year test of two models. These units had been run day and night on Suniso for approximately 80,000 hours—stopped only to be torn down at the end of the first, second and fourth years. In the words of the test engineer, the final results were: "The cylinders and the connecting rod bearings were so nearly perfect we couldn't even measure the wear in ten-thousandths of an inch. The pistons still showed the original ground surface. The valves were as clean as new and there was no evidence of gum or sludge."

For a free copy of the illustrated booklet "Suniso Refrigeration Oils," write on your business letterhead to Department RI-11.



1,500 COMPRESSORS varying in size from ½ hp to 7½ hp are assembled daily and charged with Suniso Oil. Shown here after final assembly at the paint booth are the smallest and largest units made—a ½ hp hermetic designed for a domestic refrigerator and a 7½ hp suitable for large airconditioning and refrigeration units.



SUNISO HAS A RECORD for unfailing protection of precision parts in Copeland compressors, such as these hermetics on the assembly line. After a 10-year test in which two compressors were run approximately 80,000 hours on Suniso, all cylinders, connecting rod bearings, pistons and valves were as good as new, and no gum or sludge had formed.

SUNISO REFRIGERATION OILS

SUN OIL COMPANY, PHILADELPHIA 3, PA. . SUN OIL COMPANY, LTD., TORONTO AND MONTREAL



Mr. Contractor, Here's Your Prospect!



MEET CHET PIOZZA, owner of a Reno sporting goods store—and buyer of commercial refrigeration equipment. Chet and his brother, Link, have made their walk-in cooler pay big dividends for them by using it to store their customers' trophies. Is YOUR local sporting goods merchant passing up this opportunity for "plus" business?

Do You Know When Yo

IF YOU regard your local sporting goods store as just a handy place

to buy trout flies, golf clubs, or shotgun shells, then take another look! It also can be a good prospect for commercial refrigeration equipment.

Take The Sportsman, for instance, which is operated in Reno, Nevada, by Chet and Link Piozza.

The Piozza brothers are dealers who believe that service to the customer goes a lot further than merely carrying a large inventory of the merchandise he wants to buy. Therefore, during a remodeling of the store a few years ago. Chet and Link made a thorough study of actual needs in the field, and designed the store to fit.

Among the most serious problems besetting the hunter and fisherman, the Piozza brothers found, was the inability to find refrigerated storage space for outstanding fish or game trophies which could not be mounted immediately, or which had been bagged in such quantities that the lucky sportsman could not make use of them all. Realizing that the amount of commercial refrigerated space in the Nevada city was extremely lim-

MERCHANDISING MEMO—If you can't sell your local dealer a walk-in, try him out on a home freezer. That's what the Piozza brothers used before they found that they needed more space.

Prospect ee One?

ited, and that unless the sportsman owned a home freezer of his own he would have little opportunity to preserve his catches, the Reno sporting goods dealers solved the problem for their customers.

This was done by installation of a 5 x 8-foot walk-in cooler which is large enough to accommodate hundreds of pounds of game meats, fish, and trophies, frozen rock-hard at below-zero temperatures, in safe storage for long periods of time.

Concealed in the wall of the store is a heavy insulated door, 6 inches thick, which gives access to the brightly-lighted, all-white interior of the walk-in refrigerator. Six tiers of polished metal shelving, around three sides of the room, provide plenty of space for storage.

The compressor, remotely located at the rear of the store, is provided with a stand-by unit to maintain the minus-zero temperatures in the event the main compressor goes out of service.

No charge whatever is made to customers for use of the cooler, so long as they are regular purchasers of sporting goods equipment from The Sportsman store. Thus, the hunter who has shot an unusual deer specimen or caught a prize-winning trout, and who wants to have these trophies mounted, can rush the results of his skill to The Sportsman store, where it

Continued on page 49



Mineral wool boxes guard against heat less at insula tion gaps around pipe hangars in this Pittsburgh brewery.

Do Your Lines Have "Gaposis"?

AN all-too-frequent weakness in otherwise carefully insulated pipe lines is the succession of gaps around pipe-hangers.

Plant engineers and operating supervisors view such exposed pipe surfaces as sources of heat absorption (in cold lines) or heat loss (in hot lines). Also, in cold lines, condensation at bare pipe sections may cause moisture to creep under the insulation and, by wetting, result in even more unnecessary heat absorption.

Unique boxes, constructed of mineral wool boards and stuffed with loose mineral wool, have successfully corrected this weakness along a brine line at the Iron City Brewery of the Pittsburgh Brewing Co., Pittsburgh, Pa.

Application of the new technique prevents brine, at 24 F, from absorbing heat at vulnerable pipe-hanger points and eliminates the possibility of destructive moisture condensation. As a result, refrigerating costs are kept at a minimum because power is not wasted in compensating for excessive heat absorption.

Each insulating box is formed by cutting 3-inch-thick mineral wool boards to fit around existing pipe insulation and the pipe hanger. The boards are then fitted together and fastened with skewers. To provide added insulation, loose mineral wool is packed into the box to a density of 9 pounds per cu ft. The boxes are next vapor sealed with wax-impregnated fabric and rosin-sized paper, and finally finished with an 8-ounce canvas jacket.

The piping itself, running from brine tank to stock house, is insulated with 3-inch-thick molded-type mineral wool pipe insulation. The sectional insulation is applied in two 11/2-inch-thick layers, with the sections staggered so as not to line up joints in both layers.

By tightly spiraling jute twine around the insulation, the first layer is pressed into a thick coat of asphalt mastic trowelled onto the pipe surface. The second layer is similarly secured over a coat of mastic trowelled onto the first layer, and the insulation is finished in the same manner as the mineral wool boxes.

Though applied here to prevent heat absorption and moisture condensation in a cold brine line, this insulating technique can be adapted to heated lines carrying steam, petroleum derivatives or industrial chemicals-and to other low-temperature lines in cold-storage, air conditioning, and food processing piping systems.

no matter which side of the fence you're on,

COOPERATION CAN PAY OFF

A thought-provoking analysis of Trade Relations Between Manufacturers and Contractors by J. F. Knoff, general sales manager of Chrysler-Airtemp, in which he points out the basic needs of each group and suggests some measures which might contribute to a better understanding between the men who make the products and the men who sell, install and service them.

What the CONTRACTOR needs

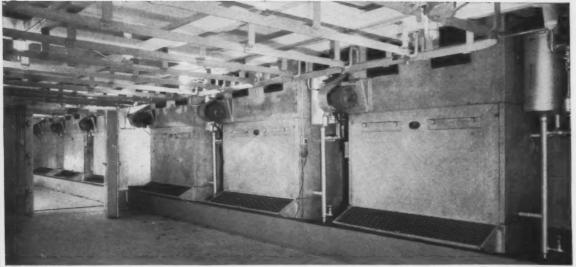
- 1 Availability of equipment required to meet specifications.
- Ability to purchase major portion of all equipment required from as few sources as possible.
- Reliable promise from manufacturer to deliver as requested, or early advice as to how long schedule will be delayed and why.
- Consideration of his low mark-ups and close cooperation and coordination, particularly as applied to prices quoted.
- 5 Close attention by manufacturer to routings and destination in making shipments.
- 6 Manufacturer's warranty through first year of actual operation.
- 7 Minimizing of direct factory competition.
- Products fully approved by consulting engineers and architects.
- 9 Complete up-to-date technical data in the hands of design agents writing specifications.
- Trouble-free products (experiments and failures damage good name of both contractor and manufacturer and cost money to correct.)
- Lowest possible costs (lower prices mean more people can buy.)
- Consideration and understanding of the fact that manufacturers can be no more successful than the dealers and contractors who represent them.

What the MANUFACTURER needs

- Constant, consistent production in order to build a product economically to meet a competitive market.
- A stable dealer-contractor organization franchised to promote the sale of his products only.
- 3 Standardization of models and elimination of special types, sizes, and production runs.
- 4 Sufficient inventory of hard-to-get items to protect production.
- Warehousing of sufficient products to protect dealer-contractor business during off periods.
- A means of reducing high cost of field manpower and loss to trade.
- 7 Aggressive merchandising practices at consumer level.
- Factual information regarding dealer-contractor needs far enough in advance to make possible sensible forecasts of production requirements.
- Consistent, hard-hitting advertising and sales promotion plans at dealer-contractor level.
- Increased inventories in field to lessen load on manufacturing.
- Willingness of contractor to accept service responsibilities.
- 12 Loyalty of dealers and contractors to one manufacturer.

Sharp freezing
28,800 lbs. of beef
is easy with

Acme BLO-COLD



* Trade Mark

Sharp-freezing and storing more than 605 quarters of beef every 36 hours was the problem for the James Allan & Sons Plant in San Francisco. After slaughtering, the beef is frozen in two preliminary handling rooms, which are kept at -15° F. These two rooms hold about 280 quarters of beef. After this preliminary



freezing the beef goes into the "holding freezer" where 325 quarters of beef are kept in stock for delivery at temperature of "0° F." The entire freezing installation consists of ten ACME Blo-Cold Units, three in each of the preliminary freezing rooms—four in the "holding freezer". The James Allan & Sons Company is the largest Packer in the San Francisco area and their Plant is the only one that can deliver this large quantity of beef—about 28,800 lbs. frozen at -15° and kept at "0° F." for delivery. Other Companies "cool" but do not freeze.

The Engineers for the James Allan & Sons Company, selected

ACME Blo-Cold Units on the basis of comparative data, because of their simple installation and low-cost, dependable operation.

The versatility of the ACME Blo-Cold Unit makes it adaptable to a variety of applications. ACME Engineers will gladly cooperate in finding a low-cost solution to your Refrigeration problem. Write today—without obligation.



ACME INDUSTRIES, INC., JACKSON, MICHIGAN, U.S.A.

Air Conditioning and Refrigeration Division

CONTINUOUSLY SERVING THE AIR CONDITIONING AND REFRIGERATION INDUSTRY SINCE 1919

Circle No. 57 on Reader Service Card for more information



More than 80% of the brokerage floor of San Antonio's new produce terminal is refrigerated, which means that contractors literally provided . . .

REFRIGERATION BY THE ACRE

THEY have a reputation for doing things in a big way down in Texas, and San Antonio's new \$2,000,000 Produce Terminal Market, opened last September and now in full operation, certainly adds to this reputation—whether you look at it from a standpoint of overall size or from the extent of the refrigeration facilities that it includes.

The Market itself covers 27 acres, 8 acres of which are covered by 12 buildings. It has parking and dock space for 600 trucks, and more than a mile of railroad track inside the area to accommodate 100 railroad cars. It has a completely air conditioned administration building providing offices for the market's manager and others, a 250-seat restaurant, a barber shop, and shower facilities.

It has a public address system, and its own internal telephone system.

And it has a whale of a lot of refrigeration equipment. More than 80% of the Market's brokerage floor area is refrigerated. Conditions of temperature and humidity vary from 68 to -20 F and 50% relative humidity, to dripping wet lettuce and avocado holding rooms. Controlled native tropical climates are re-created for ripening bananas.

Although each of the wholesale produce firms who has space in the Market negotiated its own contract for refrigeration, the designs and the type of equipment used are typical throughout. Cooling water conservation and economy are observed in most of the installations.

A total of 14,698 square feet, or

140,838 cubic feet, of prefabricated storage coolers for bananas and assorted fruits and vegetables were sold and installed by Friedrich Refrigerators, Inc. under various contracts with the independent produce firms. This space is provided by 12 individual coolers of from two to six compartments, varying in size up to 60x45x8 feet, 6 inches in size.

These coolers are powered a total of 172.5 hp, made up of 39 condensing units of from 3 to 7½ hp capacity, all of Friedrich manufacture. Fortyeight Betz and 12 Bush forced-air cooling units comprise the low sides in the various compartments.

Condensing units which are not air cooled are piped to atmospheric cooling towers. One of the installations just described makes use of two Thermotrol cooling towers and 11 Peerless "Fluidyne" pumps, one tower serving six 5-hp condensing units and the other five 5-hp units. Each of these condensing units is provided with its own circulating pump with a common suction but separate discharge to its individual tower header.

Cooling Equipment Varies

Another contractor, Industrial Refrigeration Co. of San Antonio, installed a total of 16 Brunner 3 and 5 hp condensing units totaling 63 hp on storage rooms in the Market, using 32 Recold standing unit coolers as low side equipment. On these installations, condenser cooling water is provided by nine Thermotrol atmospheric cooling towers, varying from 10 to 50 tons each. Water circulation is handled by 29 Peerless pumps of from 3/4 to 11/2 hp size.

Eight individual contracts installed by P. K. Crawford, San Antonio, called for 15 Brunner condensing units, three Frigidaire condensing units, 18 Recold standard humid air blower coils, and 16 Peerless pumps.

Controls Banana Ripening

Banana holding and ripening rooms of the Banana Supply Co. are designed to process the fruit regardless of its stage of ripeness on arrival. In addition to holding fruit received green until market demands require it to be ripened and shipped, this plant permits salvaging of bananas which have begun the irrevocable ripening process on the boat because of inadequate refrigerated control in transit.

Such fruit is quickly loaded into fast trucks at Brownsville, Tex., and rushed to the San Antonio Terminal, where it is placed under conditions of temperature and humidity which permit it to ripen with the waxy sheen and natural flavor that enhance its sale and consumption.

Refrigeration in this plant was installed by Bickham Refrigeration Co., San Antonio, using 16 Recold blower coils and three Mills 5-hp condensing units, with a 15-ton Star atmospheric cooling tower and five Peerless pumps for the condenser water cooling circuit.

One of the nation's finest produce terminals, and second only to the one in Los Angeles in size, the San Antonio Market, managed by Lloyd

W. Edwards, will operate as a wholesale market only. Planned, built, owned and operated by farmers, truckers and produce men, the Market will be operated for the benefit of these people and their customers. Despite its immense size, its facilities are such that it can be operated as a closely integrated unit.

The present structure covers 27 acres, with an additional 9 acres available for expansion. Located south of San Antonio on the new expressway, the Market is easily accessible by highway and railroad. Streets are wide for easy movement of trucks. All buildings are of reinforced concrete, incorporating all

modern features of architecture and material handling design.

Double railroad tracks at the back of each merchant's space permit merchandise handling on the dock at cardoor level, and the front side has a 28-foot dock, covered by a 30-foot canopy, for loading and unloading of trucks.

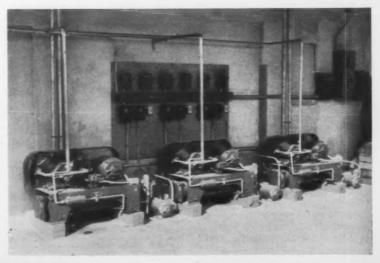
The Market's public address system comprises 41 loudspeakers, operating in conjunction with a 24-unit telephone exchange to allow calls to be answered in a matter of seconds.

A 14-pump gasoline station serves the Market enclosure, and is equipped with special bays to flush out and Continued on page 49

Just a sample...



. . . of the many different sizes and types of refrigeration equipment installed in the new \$2 million dollar terminal are the blower caits in the cooler pictured above and the bank of compressors shown below. Each tenant of the market contracted individually for the refrigeration equipment be needed.



COMMERCIAL RESERVED RESERVED SALES NEWS

Pre-Packaged Perishables—Will They Change America's Food Buying Habits?

By Robert L. Tyler President, Tyler Fixture Corp.

THERE are signs and portents that lead many of us to believe that another major change in American food buying habits may not be too far ahead.

The impact of the frozen food and concentrate business on the food store of today is being felt by all retailers and wholesalers. Where it may lead, and how soon, is an open question. There are many groups of stores and many individual stores today experimenting with frozen fresh meat and finding their experiments had developed in certain areas high sales and customer appreciation.

As has been true in the development of the super market, the entire perishable foods industry, including all phases, will have to move into this problem together. It cannot be settled by the design of better commercial refrigerators but can only be solved by the processor, his method of handling and transportation, the commercial refrigerator manufacturer and the food store operator, all working together.

The prepacking of fruits and vegetables has brought about another most interesting hypothesis.

Long claimed to be a superior method, cutting shrinkage to a minimum and making possible greatly increased sales, prepackaged produce as yet has not become an actuality in the average American food store except in very limited quantities and with certain types of products.

Regarding the specific trends of the commercial refrigerator industry, I would say that the following broad principles affecting both trend and style would stand out in the next several years and possibly for a decade.

Certainly, we are all aiming for refrigerators that place perishable foods in an accessable position for both clerk and customer. This holds just as true in a modern kitchen for restaurants and institutions as it does in the modern food store for customers.

As a second point, I feel we are all aiming for greater capacity to reduce the ever-present need for additional manpower to service the refrigerator.

As a third factor, we are shooting for better exterior appearance to fit unobtrusively but attractively into the modern decor of all retail marketing establishments.

As a fourth factor, we are all attempting to improve the efficiencies of

HE FOUND "MISS FOGEL"



WINNER of the \$100 "reward" offered to the person who discovered "Miss Fogel Refrigerator" during the All-Industry Show was Dale Neal (right), of Lingle Refrigerator Ce., Kansas City, shown here receiving his check from President William Fogel. Looking on, of course, is "Miss Fogel," who in real life is Miss Signid Ritte, Chicago model.

the equipment which we are selling and I know in our own case as a pioneer in forced air circulation, we have adapted this superior method of temperature control in open equipment to all of our designs.

The fifth important factor to all of us is simplicity of design and ease of maintenance, and last but not least, we are striving for lower first costs so that we may widen the base of our market to include all types of merchants.

One thing is certain and that is that the commercial refrigerator business as it applies to the American food store, restaurant, hospital and hotel will progress and will offer to refrigerator manufacturers, distributors and dealers a continuing opportunity to build profitable businesses.

The largest American industry, that of food for your table, directly affects all of us and will continue to pay back to those who follow it ample dividends in profits and satisfaction.

NEW EQUIPMENT FOR CITY MARKET SOUGHT

The "antiquated and expensive" refrigeration system now in use at the Chippewa Food Market in downtown Buffalo (N. Y.) is an unnecessary expense to both renters of meat stalls in the market and to the city, it was charged by a speaker at a recent meeting of the Midtown Businessmen's Association.

Alfred Newman, meat stall operator, said that renters pay an amount approximately equal to their rent annually for use of the refrigeration facilities, which are maintained by four full-time engineers.

Newman urged that the city abandon the refrigeration plant, and that meat men be permitted to install their own refrigeration systems.

SWEDEN ADDS DEALERS IN SOUTHEAST AREA

Sweden Freezer Mfg. Co., through its southeastern manager, Robert D. Bain, has announced the appointment of two additional dealers.

One is Thomas L. Carnell, Atlanta, who has had 22 years' experience in the commercial refrigeration field; the other is the Glovall Equipment Co., Mobile, Ala., which will handle Sweden equipment in addition to Tyler commercial refrigerators.

about PEOPLE

Dwight W. "Dyke" Hardie, 36, district manager for Ansul Chemical

Co. in the Kansas City territory, was killed instantly Dec. 7 in an automobile crash a few miles outside of Newton. Kans. He had been with the company for nearly five years. L. T. "Tom"



Plouff, Ansul's assistant sales manager, a passenger in the Hardie car, received severe head injuries and was hospitalized at Newton. Police reports indicate that the crash occurred when an oncoming car swerved into the left-hand lane to avoid hitting an unlighted tractor. The car struck Hardie's vehicle head-on. Hardie is survived by his wife, Martha, and seven-year-old son, William.

Two new executive appointments in the Airtemp Division of Chrysler Corp. have been announced by C. E. Buchholzer, Airtemp president. J. F. Knoff, who has been assistant general sales manager, was named gen-





T. B. Hollencamp

eral sales manager to take the place of C. S. Stackpole who recently resigned. T. B. Hollencamp, former supervisor of service, was named national service manager. Knoff has been with Airtemp for six years, starting as a district representative in the New Orleans region. In 1948 he was named sales director and in 1950 assistant general sales manager. Hollencamp came with Airtemp in 1937 as a service representative. In 1942 he was made assistant service manager, and by 1949 he was supervisor of service.

Appointment of A. J. Mallinkrodt as chief engineer of the United States

Air Conditioning Corp. is announced by the firm. Mallinkrodt. formerly manager of engineering for Baker Refriger at i o n Corp., will direct all design, development and



research engineering activities of usAIRco in his new position. He was previously associated with Carrier Corp. for four years and served for three years as manager of the refrigeration department of Edward H. Reuss, Jr., Inc., a Baker distributor.

A. B. (Bill) Bayer has been appointed assistant to the general sales

manager of Mc-Quay, Inc. Bayer's 15 years of refrigeration experience has been gained in all phases of product distribution. He was sales manager of the Coldew Mfg. Co., a



refrigeration manufacturer in California, he has managed the refrigeration and air conditioning departments of W. A. Ramsay Ltd., a Honolulu, Hawaii, distributor, and most recently was a factory representative for Schaefer Inc. As assistant to the general sales manager, Bayer will coordinate the activities of the McQuay refrigeration sales

representatives and establish personal contact with McQuay wholesale and manufacturing accounts.

Appointment of Joseph L. Armstrong as manager of the air con-

ditioning sales section of Crosley Div., Avco Mfg. Corp., has been announced by that firm. Armstrong's appointment follows the recent announcement that arrange-



ments had been completed under which Fedders-Quigan Corp. will manufacture room air conditioning units to Crosley design and specifications at the Buffalo plant of Fedders-Quigan. Sale and distribution of the new Crosley air conditioning units will be handled through the existing Crosley organization of franchised distributors and dealers.

Jamison Cold Storage Door Co. announces the opening of a direct

branch office in Omaha, Nebraska. This office will serve the requirements of Jamison customers located in the entire states of Nebraska and South Dakota, as well as those lo-



cated in Iowa west of and including Des Moines. The office will be in charge of A. C. Hoffbauer. Hoffbauer has been part of the Jamison sales organization for some years. He has extensive field experience and is factory trained.

Frank C. Hawk has been appointed director of sales for Brunner Mfg. Co., according to a recent announcement by A. G. Zumbrun, Sr., president. Hawk most recently was New York District sales manager for Bush Mfg. Co., and previously was with Worthington, Chrysler Airtemp, Peerless, and York. J. W. Thomas, Brunner sales manager for the past five years, becomes New York District sales manager, succeeding G. W.

Mathews, who has retired. O. Ross McDonald, Brunner advertising and sales promotion manager for the past 11 years, has been appointed to the new post of public relations officer, and C. W. Hatcher has been named advertising and sales promotion manager. Hatcher formerly was with Baker in a similar capacity. William Stom has been promoted to the position of chief application engineer. This department will offer application and field engineering service to all Brunner customers.

John R. Ferguson has been appointed district manager of the General Controls Co. branch office at Denver, and Herb Lindstrom, former Denver branch manager, has

assumed a similar position at the Minneapolis branch. Ferguson formerly managed the Salt Lake City branch office. Ferguson and Lindstrom will be in charge of all activities in their respective territories.

Felix Wengerter has been appointed district manager of the New York branch office for General Controls Co. Wengerter's new position entails complete charge of all New York and Newark branch office territory activities, including sales engineering and service of the company's broad line of automatic controls.

Richard C. Niess, until recently a sales engineer for York Corp.'s North Atlantic district in New York City, has been transferred to the home office in York, Pa., where he will assist with engineering problems dealing with special government defense and essential civilian projects including low temperature refrigeration applications. Niess has been with York since 1944.

Albert Wittlin, president of Allin Mfg. Co., announces the appointment of R. L. Hendrickson to the newly created post of public relations for the firm. Hendrickson brings with him a background of 26 years of active service in the refrigeration industry. During this time he has been associated with manufacturers, service organizations, wholesalers, technical Continued on page 50

3-Zone "Step Down" System Cools Blood Donors



Cafeteria section of St. Poul Red Cross building with blood donor room in background. Special oir conditioning system using usAlRco packaged "Kooler-aire" equipment was installed by Pierre Aircon Co.



UsAIRco RK-10 is located in penthouse above donor center garage. Three zone booster coils, seven-day program timer and outdoor control maintain design conditions completely automatically.

A specially-designed completely automatic air conditioning system, planned to provide the most favorable room temperature at each stage of the blood donation process, has been operating successfully for several months at the American Red Cross Blood Denor Center in St. Paul, Minn.

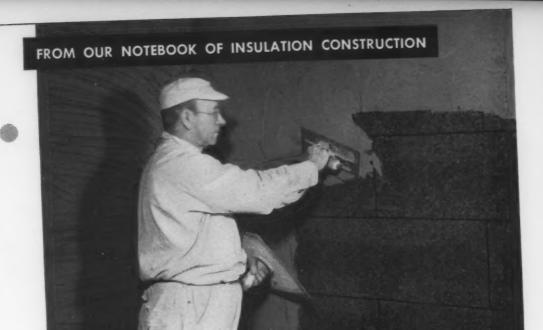
The system, designed and installed by the Pierre Aircon Co. of St. Paul to meet conditions set up by Red Cross headquarters, utilizes three zones of reheat to provide gradual temperature drops as the blood donor proceeds from the street, through the reception and testing rooms to the donor center proper, where a relatively low temperature is maintained to minimize the tendency for donor blackouts following the blood dona-tion.

Equipment includes a United States Air Conditioning Corp. 10-ton refrigerated Kooler-aire unit operating from a seven day program timer, so that it is in operation only during the hours that the center is actually in use. The unit is also connected to a refrigeration-type outdoor controller so that its compressor will operate whenever the outside temperature is above 75 F.

In the office area where the donor first enters the building, the temperature is 75 F, dropping to 72 F while he is processed for typing and testing of the blood, and to 68 F in the

donor center itself. From there, he proceeds to the cafeteria, which is maintained at 72 F, and leaves the building through the 75 F area.

While the outside temperature remains between 55 and 85 F, the system operates on 100% fresh air controlled by automatic outdoor dampers. If the temperature falls below 55 F or rises above 85 F, the system is designed to run on 1,000 cfm of outside air. To balance the fresh air a USAirco utility type CH ventilating fan draws air over the canteen coffee urns and from the lavoratories, discharging it outside the building from a single pipe. The air conditioning unit is located in a penthouse on the roof of the building's garage.



What's the best finish for corkboard insulation?

Three types of finishes are recommended for the protection of corkboard insulation in low-temperature rooms. Where moisture or humidity conditions within the room are severe, use Armstrong's Mastic-Finish Corkboard. This board has a ½" thick asphalt coating ironed on at the factory. After the insulation is erected, joints and nail or skewer holes are pointed with Armstrong's 27-B Seam Filler. The finish can be painted with aluminum paint for extra brightness.

For normal application to temperatures to 25° below zero, Armstrong's Plastic or S. P. Emulsion Finishes can be used. Plastic Emulsion provides a sand finish, while S. P. Emulsion trowels to a smooth surface. Both are applied in two coats and dry to approximately ½" thickness. They are available in factory-mixed containers or can be mixed on the job with Armstrong's Asphalt Emulsion as the base. These finishes can also be painted with aluminum paint. Where subject to damage, they should be protected with bump rails or wainscoting.

 The third finish for corkboard is portland cement plaster. This is a hard durable finish applied in two coats and scored on 4' centers to minimize cracking. Because of its weight, this finish is not recommended for ceilings unless temperatures are lower than 25° below zero. Then, portland cement should be reinforced with metal lath. This finish will withstand moderate bumping, but for severe conditions should be protected.

One big advantage you get when you use Armstrong's Corkboard is that finishes key securely to the insulation surface. There's no need for expensive application of chicken wire or metal lath to hold the finish in place. And when you use corkboard insulation, its high moisture resistance and excellent insulating efficiency will give your customers years of dependable service—the kind of service that will boost your reputation for high-quality refrigeration work.

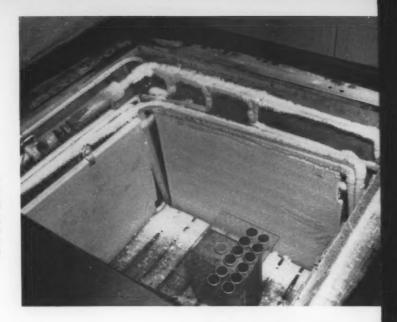
For further information on Armstrong's Corkboard and its application, get in touch with your refrigeration wholesaler, the Armstrong office nearest you, or Armstrong Cork Company, 5301 Concord Street, Lancaster, Pennsylvania.

ARMSTRONG CORK COMPANY

Makers of Armstrong's Corkboard and Cork Covering

Circle No. 29 on Reader Service Card for more information

LOW TEMPERATURE testing of petroleum oroducts is conducted in this double-lidded cabinet which is large enough to hold complete motors and engines. Operational testing of such equipment is made no ssible through a surge tank for compressed air which is keet permanently in the other half of the cabinet.



▲ Refrigeration a

TWIN TOOLS FOR I



COMPRESSORS for the cascade system which powers the freezer are mounted on the roof of the building and are protected by a metal housing. Condensors are mounted immediately beneath them.

THE continuous effort to bring more and better petroleum product to the public requires scientific research with all modern equipmer. This equipment ranges from the mass spectrometer to a low-temperaturest cabinet. It means air conditioning as well as refrigeration. The Richfield Oil Corp.'s Watson Refinery Research Laboratory in Langeles, Calif., has them all.

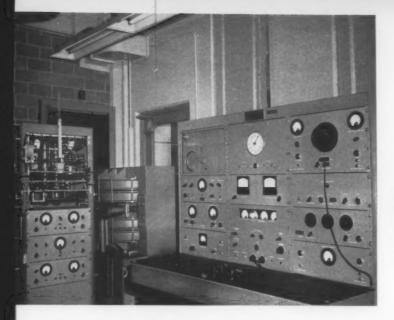
One important piece of equipment used in the research covering characteristics and performances of oils and greases is the low-temper ture cabinet. This specially constructed box is over 7 feet long at nearly 5 feet wide and 5 feet high.

Various oils and greases are put in the box and their physical cha acteristics at low temperatures are studied. The time element is alconsidered in the studies and samples are kept under low temperatur for varying lengths of time.

Temperatures in the box can be reduced to as low as -100 F.

The test cabinet is large enough to hold complete motors and engine thus enabling technicians to study the actual operating performan of oils and greases at low temperatures. A surge tank for compress air is kept in one corner of the box and when test equipment is put the box the cold compressed air is forced through the equipment thereby simulating actual low temperature conditions.

The refrigeration system was installed by Commercial Refrigeration. Co. of Los Angeles. It is a standard cascade type system using the



AIR CONDITIONED rooms insure the precise functioning of such complicated instruments as this mass spectrometer by removing the heat generated by the electronic circuits and filtering the oir to prevent dust particles from affecting the sensitive equipment. Photographic darkroom in rear also is conditioned.

ir Conditioning

ROLEUM RESEARCH

3-hp compressors with Freon-12 and Freon-22. The Freon-12 circuit cols the condenser on the Freon-22 system which in turn refrigerates he cold plates inside the cabinet.

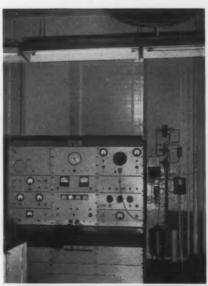
A temperature controller is mounted on the rear of the box for asy reading and accessibility. This controller also continuously records he temperature, enabling the technicians to ascertain temperature flucuation for any period of time.

There are few visible pipes in this low temperature system, as lines were run under the floor and up an outside wall to the compressors on he roof. The compressors are enclosed in a metal cabinet that protects hem from the weather and yet allows easy accessibility. The condensers are mounted underneath and parallel with the compressors.

Remote control switches were installed for use of the laboratory peronnel. Automatic cut-in and cut-out switches are used for safety, being et for 10 inches and 12.5 inches of vacuum.

The gas analysis research laboratory houses an expensive and very seful piece of equipment known as the mass spectrometer. This combicated electronic machine with over 200 electronic tubes makes it posible for the laboratory men to make an analysis in a fraction of the ime it would take by other methods.

Air conditioning is provided for two reasons. First, the heat genrated by the electronic circuits must be removed; second, the air must be filtered and kept as dust-free as possible. Excessive heat or



CONTROLS for the air conditioning system are mounted on the wall at the right, along with the controls for the steam heating system used dering winter months. Air exhaust also is located in wall.

dust could cause a change in the electronic characteristics of the spectrometer and give an improper result.

The analysis made by the machine is recorded on a film. This film, as well as other scientific photographs, are developed in an air conditioned darkroom. Temperatures must be held to a close tolerance in this darkroom, as the emulsions used to develop this special film require specific storage and processing temperatures.

The air entering the darkroom is filtered and the used air is exhausted to the outside to prevent its being picked up and used by the main system. This is done because the air from the darkroom might contain gases or vapors released from the chemicals used in the darkroom.

The air conditioning system for the gas analysis lab and the darkroom is a Freon-12 system powered by a 10-hp compressor. The compressor and coils are in a separate unit on the ground outside the building. Air is sucked into the blower and forced across the cooling coils and then into ducts leading to the building. The air is continually circulated with large floor level exhaust openings returning the air to the blower.

The filters are the all-metal type that can be cleaned and reused. The control on the air conditioning unit



"OK, so I'll check the compres-sor—but I still say you should use more shortening in these cookies!"

is an electronic thermo-regulator designed and installed by Richfield which regulates a diaphragm air flow regulator.

Freeze Foods Faster

with DOLE QUICK-FREEZE

DOLE Quick-Freeze Plates freeze foods faster because cooling is done by conduction. With DOLE Plates foods are frozen 11/2 to 5 hours faster than with ordinary methods. DOLE Plate refrigeration creates natural air

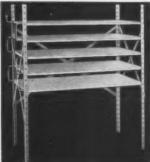
FLORIDA MAN DEVELOPS ICE CUBE MAKING UNIT

Roy Ihly, owner-manager of Pinel las Air Conditioning Co., St. Petersburg, Fla., has developed a new-type ice cube making machine for commercial use. It also has possibilities for government use in emergency for portable ice-making equipment from one to five tons.

Ihly invented the machine and filed for its patent jointly with the late R. D. Russell in 1947. He received the patent last March.

Ihly declared that the machine makes ice cubes with no loss in defrosting of cubes. It manufactures any size from individual cubes to a 300-pound block.

The ice cubes are formed in compartments by direct expansion of a refrigerant. The cubes are then harvested by converting the ice compartments to pass the hot refrigerant through space formerly acting as an evaporator. Water is supplied automatically and the rotation of the compartments automatically controls the refrigerant flow.



DOC DOLECO Says

Foods taste better and sell faster at better prices when fast frozen with DOLE QUICK-Freeze Plates.



DOLE Quick-Freeze Plates are available in standard or special sizes to meet any requirements. Write for literature today!

circulation, reduces dehydration, and offers greater operator comfort in the

refrigerated areas.

REFRIGERATING COMPANY

5942 N. PULASKI RD. 103 Park Ave., New York 17

DOLE REFRIGERATING PRODUCTS, LIMITED, 44 ELGIN ST., BRANTFORD, ONT., CANADA

Circle No. 30 on Reader Service Card for more information



Above-DOLE Quick-Freeze Plates in completely assembled unit ready to be set into freeze room or cabinet. Right —DOLE Plates installed as shelves in freezing rooms.





FOF THE INDUSTRY

SHERER ZONE MEN OUTLINE '52 PLANS

Zone sales managers of the Sherer-Gillett Co. spent three days in Marshall, Mich., recently at a conference with factory executives to consummate plans for the 1952 sales program. In attendance were E. W. Orrall and Robert E. Orrall, Braintree, Mass.; George J. Frank, Ridgefield, N. J.; John C. Glover, Montrose, Ala.; W. L. Winchester, Carthage, Mo.: John R. Palm, Minneapolis; C. R. Rogers, San Mateo, Calif.; William Sluman, Edmonds, Wash.; and J. Fred Miller of Marshall.

Two new models were unveiled for the sales managers. One, a multiple deck dairy case, will be available in two lengths, 10 ft. and 6 ft. with or without mirrored superstructure. The other is a 10 cu. ft. open self-serve case for frozen foods.

The zone men were also shown new production facilities at the factory, including a 72-foot gas-fired baking oven with continuous conveyor, and new conveyor-type assembly lines which enable units to be moved with greater dispatch during the actual assembly process.

Established in 1852, the Sherer-Gillett Co. will celebrate its centennial year during 1952. For all of that 100-year period, the company has been associated with food merchandising.

EMERSON CHICAGO OFFICE IS MOVED

The Chicago district office of Emerson Electric Mfg. Co. has recently moved to larger quarters at 1623-25 South Pulaski Road, Chicago 23. All warehouse and office operations are consolidated in the new and larger quarters. T. J. Egan continues as Chicago district manager.

NEW ASHVE ENVIRONMENT LAB



NEW ENVIRONMENT LABORATORY opened recently by American Society of Heating & Ventilating Engineers at its general research laboratory in Cleveland will be used to study human comfort in heated and cooled indoor spaces, and to develop data for the design and installation of panel heating and cooling systems. This is a general view of the exterior of the room, with instrument console, entrance to crawl space underneath the stairs and dehumidifier and duct work. Temperatures of walls, windows, floors and ceilings can be controlled separately to simulate a variety of conditions. Ceiling height can be varied from 7 to 12 feet, and the room itself (25 x 12 feet) divided into two rooms of 12 x 12 feet if desired. Main equipment room including compressors, heat exchangers, tanks, pumps, etc., is located on the floor immediately below this room.

KIRBY AND WILSON BUY BAL-AIR FIRM

B. W. Kirby of Columbia, S. C., and John Wilson of Nashville, Tenn., have purchased the Bal-Air Corp., Nashville, Clarence Riegel, the former owner, reports. Riegel said he sold his interest in the firm so he could devote more time to another firm he owns, the Tennessee Aircraft Corp.

Kirby is a former distributor for Bal-Air, which manufactures a ir conditioning units. Wilson formerly was secretary of the firm, and now is vice president and secretary. Kirby is president.

AAF FORMS NEW CANADIAN OUTLET

The Canadian business of American Air Filter Co., Inc., Louisville, Ky. after Jan. 1, 1952 will be handled by American Air Filter of Canada, Ltd., Montreal, P. Q. Wm. G. Hole.

formerly of Darling Bros., Ltd. will be in charge of all Canadian operations. Representatives will be established in the larger Canadian cities to handle the AAF line of air filters, electronic precipitators and Roto-Clone dust collectors.

5-YEAR PLAN ON KELVINATOR UNITS

Kelvinator has announced a new five-year protection plan on its commercial sealed units, according to H. C. Patterson, commercial sales manager.

The five-year coverage, unique in the industry, is available at a cost of \$5 for nominal ½ hp units and smaller, and \$7 for nominal ½ hp. Units purchased without the additional coverage carry the normal one-year warranty.

The new warranty specifically covers the entire unit and the fan motor, but does not include the relay and capacitator.

PENN CHANGES NAME TO "PENN CONTROLS"

The firm name of the Penn Electric Switch Co. has been officially changed to Penn Controls, Inc., according to an announcement issued by Albert Penn, president.

Explaining the name change, Penn stated: "For some years we have considered changing the name of our company to describe more accurately the character of our business. Years ago the name Penn Electric Switch Co. was descriptive of the products we manufactured. However, over the years our product line has grown to include many items other than electric switches. During this time our products have become generally known to our customers as 'Penn Controls'. Therefore, all necessary steps have been taken to officially change the company name to Penn Controls. Inc."

The announcement emphasized that the name change will not in any way alter management, general policies, or operation of the company; nor will it have any effect on contracts, agreements or purchase order.

USAIRCO APPOINTS CANADIAN OUTLET

Creamery Package Mfg. Co. of Canada, Ltd., has been named exclusive Canadian representative of United States Air Conditioning Corp. of Minneapolis. The Canadian con-cern, which has its main office in Toronto and maintains a nation-wide sales and service staff, will handle the complete line of usAIRco air conditioning, heating and ventilating equipment. The firm is managed by Harry Nellist and specializes in refrigeration and dairy equipment.

RETAILERS CAN USE W-5 CMP SYMBOL

Retailers who sell controlled shapes and forms of steel, copper and aluminum to the general public have been given a W-5 priority rating to help them replace their depleted stocks of these materials.

In Order M-89, which establishes the new allotment symbol and certification, NPA specifically limits its use to materials which are for resale to the public. Retailers who maintain service operations cannot use any materials they obtain in this way in their own servicing work.

Also, the regulation does not apply to refrigeration parts wholesalers, for example, since its application is limited to concerns who sell at retail only.

The allotment symbol W-5 holds equal rank with other such symbols, but the amounts of controlled materials obtainable with it are not substantial. For instance, small users are allowed a maximum of \$25 per quarter of seamless tubing, copper or aluminum bars and rods, foil. and wire, and up to \$90 worth of copper pipe and tubing per quarter.

Larger users are permitted to order 100% of the steel materials and 60% of the copper and aluminum materials they purchased in an average quarter of 1950. They must also pursubstantially the same materials that they purchased in 1950.

SEES HUGE MARKET IN LOW TEMP FIELD

Frozen food merchandisers represent the greatest sales potential and the biggest challenge in the commercial refrigeration equipment industry today, according to H. C. Patterson, Kelvinator commercial sales manager.

Addressing a recent meeting of Kelvinator commercial sales managers, Patterson said the vast increase over the past 10 years in the number of retail outlets carrying frozen foods offered the industry a 'golden opportunity.'

"In 1941, only 29% of the grocery stores in the U. S. carried frozen food," Patterson said. "Today 88.3% carry frozen foods.'

"Without a doubt the frozen food business in the next two or three years can be developed to where it will exceed our total commercial volume.

Patterson said Kelvinator commercial sales volume in 1951 including frozen food merchandisers. showed an increase of more than 15% over 1950.

The 1952 equipment includes a full line of frozen food merchandisers from 6 to 12 cubic feet in size, water coolers, and condensing units, including 16 sealed and 15 air and water-cooled open-type. Newest condensing units are four new F-22 hermeticallysealed models, offering lowstarting torque and highstarting torque systems in both 1/4 and 1/3 hp sizes.

RECO MOVES OFFICE TO NEW YORK CITY

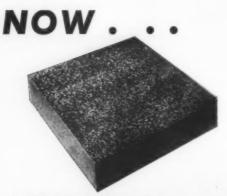
Refrigeration Engineering Corp., Philadelphia, has moved company headquarters from that city to 150 Nassau St., New York City. The new headquarwill house both the ters Reco Products Division and the International Division of the company.

The company manufactures prefabricated sectional walk-in cooling and freezing rooms, sectional reach-in freezers and icemaking equipment. Its main plant, including sheet metal operations, is located in Emporia, Va., and the New York City location is considered preferable to the company's former administrative offices at 2020 Naudain St., Philadelphia.

All Reco administrative and sales functions will be housed at the new New York address.

YORK CORP. GETS ORDNANCE CONTRACT

A contract to manufacture breech rings for the U. S. Army 90-millimeter guns, and valued in excess of \$1,000,000, has been awarded to York Corp. The contract was granted by the Philadelphia Ordnance District of the U.S. Army for the Watervliet Arsenal located at Watervliet, N. Y.



A PERFECT INSULATION FOR EVERY REFRIGERATION NEED

new and constant insulating value—a low K factor of 0.20 British Thermal Units! You can offer new and greater protection when you insulate with

EXPANDED HARD-BOARD CELLULAR EBONITE

Strong! Light—density 4 pounds per cubic foot! Easy to handle! ONAZOTE is not affected by moisture—it will not rot! It will outlast the equipment in which it is used!

SEND TODAY FOR COMPLETE DETAILS

BRITISH XYLONITE, INC.

754 Lexington Avenue

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any size . . . any shape . . . any metal! Think what this means in time saved . . . MONEY SAVED! Before you buy another plate, get the facts on DEAN "job tailored" cold plates. It will be well worth your while!

Ask your jobber, or write DEAN PRODUCTS, INC. 1042 Dean St., Brooklyn 16, N.Y.

STerling 9-5400 Write for Technical Data Book

Circle No. 31 on Reader Service Card for more information Circle No. 32 on Reader Service Card for more information 46 JANUARY, 1952 . COMMERCIAL REFRIGERATION

Plates also available for Baudelot-type Coolers

BRUNNER REPRESENTATIVES HOLD ANNUAL SALES MEETING



EXPERIENCE totaling 464 years with Brunner is represented by these members of the company's home office and field sales organization, photographed during their recent annual sales meeting in Utica, N. Y. Rear Row, left to right: Elmo Burlingame, Utica; W. J. Brinckerhoff, New York; Victor Edmonds, Utica; S. W. Hanna, Cleveland; C. W. Hatcher, Utica; H. E. Close, advertising, Buffolo; J. W. Thomas, New York City; P. A. Karl, export, Utica; W. M. Coshin, Boston; F. G. Slagel, Los Angeles; O. R. McDonald, Utica; F. E. Wilson, Philadelphia; E. H. Schiller, Utica; R. C. Smith, Dallas; William Moran, export, Utica; B. F. Wetch, export, Utica; C. E. Burlingame, Utica; B. F. Fleming, Baltimore. Front Row: J. R. Reid, Des Moines; C. C. Barnhill, treasurer, Utica; P. T. Rahn, credit manager, Utica; L. A. DeMarsh, Kansas City; Jack Karl, export, Utica; H. S. Ormsbee, export, Utica; R. D. Heitchee, engineering, Utica; A. D. Sullivan, chief engineer, Utica; F. C. Hawk, sales manager, Utica; A. G. Zumbrun, president, Utica; A. W. Detweiler, Utica; G. W. Mathews, New York; J. P. Junkin, Minneapolis; F. M. Carryl, Tallahassee; T. J. Lyon, Chicage; Al Zumbrun, Jr., Utica; L. B. Menard, Cincinnati.

KNOFF, MOONEY ON ACRMA BOARD

At the recent meeting of the board of directors of the Air Conditioning and Refrigerating Machinery Association, J. F. Knoff, general sales manager of Airtemp Div., Chrysler Corp., and M. E. Mooney, vice president of Baker Refrigeration Corp., we re elected to membership on the ACRMA board.

At the same meeting, A. P. Shanklin, vice president of Carrier Corp., and chairman of ACRMA's executive committee, was elected president for the balance of the association year, replacing Fred W. Smith who has retired from industry activities. George E. Wallis, president of Creamery Package Mfg. Co., was elected as ACRMA vice president, succeeding C. S. Stackpole.

WITT CO. MOVING

A. H. Witt Co. is terminating its association with Air Products, Inc., Inglewood, Calif., in the manufacturing and sale of refrigeration and air-conditioning coils.

A. H. Witt Co. is opening a new factory at 941 N. Orange Dr., Los Angeles 38. The new factory is being equipped with the latest type machinery and equipment. Witt engineers designed several special pieces of equipment that are unique for the production of coils. This equipment will greatly speed

production and eliminate a number of operations.

Production started in the new factory about the middle of December and will be in full production by the first of the year.

Operation of the factory will be under the name of Witt-International Corp. with all products being marketed by A. H. Witt Co. at the same address.

A. H. Witt Co. will continue as distributor for Display-All refrigerator doors and refrigerator vapor-proof lites.

TWO NAMED TO WIS.

Halbert W. Hoard, president of United Mfg. & Service Co., Milwaukee and T. D. Solie, advertising manager of LaCrosse Cooler Co., have been appointed by Gov. Walter Kohler of Wisconsin as members of a special 24-man Small Business Commission.

United Mfg. & Service Co., which engineers and manufacturers wiring systems, harnesses and cord sets for manufacturers of refrigerators, freezers and other refrigeration products and LaCrosse Cooler Co., manufacturer of commercial refrigeration equipment are the two refrigeration industry representatives on the commission.

The Wisconsin State Commission of small business is one of the first organized upon the recommendation of National Production Authority to represent and coordinate

the efforts of small businesses on obtaining a greater share of defense contracts.

PERCIVAL CO. SOLD TO JOHN STODDARD

Stock of C. L. Percival Co., Boone, Iowa, owned in major part by the heirs of the Percival estate, has been sold along with all assets to John Stoddard, president of both Iowa Machinery Supply Co. and Stoddard Machinery Co., of Des Moines.

Members of the Percival family have not been active in the activities of the company since the death of W. H. Percival in 1942. Management of the entire organization has been in charge of A. J. Maas, vice president, who will continue to handle this function for the new owner.

Maas has been associated with Percival for 38 years in production, engineering and management operations. No changes or additions in personnel or operation are planned. The Percival company has been in the commercial refrigeration fixture business since 1886.

SWEDEN NAMES 2 NEW DEALERSHIPS

Sweden Freezer Mfg. Co. announces the appointment of two new authorized sellers, Dakota Food Service Equipment, Inc. of Fargo, N. D., and Bivins and Co. of Amarillo, Tex.

MITCHELL OFFERS WEATHER INSURANCE

Mitchell Mfg. Co. has announced a "weather insurance plan" for distributors that is designed to insure the disposition of room air conditioners by the distributor regardless of unseasonable weather at peak selling periods.

Under the plan as outlined by E. A. Tracey, vice president in charge of the Mitchell air conditioning division, a national pool is created through which unsold units carried over by some distributors may be spread throughout the country through all distributors, and placed on an attractive merchandising basis for certain sale.

Tracey explained that Mitchell will repurchase its air conditioners from distributors who have an inventory carry-over at 12% less than present distributor's cost. The company will then apportion and re-sell the units to all its distributors at 12% less than present distributor's cost, and will pay all transportation charges involved.

Advantages of the plan pointed out by Tracey are that (1) the distributor who lost potential sales because of unseasonable weather can clear his unsold units on a satisfactory basis, and have newest models for the new season; and (2) distributors who have sold all of their units will have a source of additional units available to them for special merchandising purposes.

HONEYWELL OPENS DISTRICT OFFICE

A new district office has been opened at Harrisburg, Pa., by Minneapolis-Honeywell Regulator Co.

The new office, located in the Kline Village development, was made necessary, Honeywell officials said, by an increasing demand in the Harrisburg area for process measuring and controlling instruments and for heating and commercial controls.

William J. Brosch and Jack Caylor will handle sales for the company's Brown Instruments division. John Hopkins will handle commercial, and Donald Schmick heating controls divisions sales.



BAILEY & PERKINS SELLS HEATING DIV.

Bailey & Perkins Co. has announced the disposal of the good will and assets of its heating division, the Cunningham Stoker Co., 2869 E. Grand Blvd., Detroit 2, to Walter E. Burke.

The company will be operated under the same name, at the same address, and with the same personnel as in the past, it was announced.

Bailey & Perkins Co. will devote its full time to the operation of the Freez-Rite Division in its new and larger plant at 44464 Van Dyke Ave., P.O. Box 203, Utica, Mich., a suburb of Detroit.

MOVE GEN. CONTROLS APPLIANCE DIVN.

General Controls Co. has completed a new plant at Glendale, Calif., to house its newly acquired appliance controls division. The new facility, covering 15,000 sq. ft. of working space and devoted entirely to the manufacture of appliance controls, will enable the moving of the Grayson-

Greenamyer Appliance Controls Division from Monrovia, Calif., to the main headquarters in Glen-

About 100 employees will be housed in the new building. George Greenamyer will continue as manager of the division, and Richard Grayson as head of the appliance controls division of General Controls.

ALLOW 45-DAY ALUMINUM SUPPLY

Because of heavy military demands for aluminum during a period when supplies are tight, the National Production Authority has reduced by 15 days—from 60 days to 45—the supply of this metal a manufacturer may keep in inventory.

Exempted from the reduction, however, are manufacturers engaged in the military aircraft program, whose authorized controlled materials orders are identified by the allotment symbol A-1. These manufacturers are still permitted to maintain a 60-day inventory of aluminum.



ORDER FROM YOUR LOCAL JOBBER
Circle No. 33 on Reader Service Card for more information

JANUARY, 1952 . COMMERCIAL REFRIGERATION

HERE'S YOUR PROSPECT . .

Continued from page 33

will be placed under refrigeration, properly wrapped, with his name applied, and left as long as is necessary.

The service is particularly valuable from a taxidermy standpoint, the Piozza brothers point out, inasmuch as taxidermists are invariably most busy at a time when they are needed for trophy mounting. The Sportsman store keeps in touch with all local taxidermists, and by storing the trophies until the taxidermist can handle them, eliminates the possibility

News of The Sportsman store's unique refrigerated service has spread throughout all of Nevada, with the result that it is nothing unusual for a sportsman to drive hundreds of miles in order to store his game or fish catches under ideal refrigeration, at the same point where they may be dispatched to the taxidermist, and other services performed.

All refrigeration in the store is checked on a weekly basis for operating efficiency, as a safeguard against the loss of valuable specimens which would, of course, result in serious ill-

"In modern competitive selling, when most dealers have approximately the same merchandise to offer. it requires such a specialty service as this to make any single establishment stand out from the others," Chet Piozza asserts. And many another sporting goods dealer could profit by the example the Brothers Piozza have set.

BY THE ACRE . . .

Continued from page 37

lubricate tractor trailers. Public scales and icing facilities are also available on the market site.

Economic importance of the new Terminal Market in the wholesale fruit and vegetable distribution picture is recounted in a report compiled recently by William H. Elliott, Norman G. Paulhus and Allison B. Lowstuter, of the Marketing and Facilities Research Branch of the U.S. Department of Agriculture.

The report emphasizes the geographic economies of the Terminal Market location between the banana and tropical fruit producing areas of Mexico, Central and South America, the citrus fruit orchards and vegetable farms of the Texas Rio Grande Valley and Winter Garden, and the consuming centers of the U.S. North and Northeast.

Figures for 1946, the most recent ones available, show that the San Antonio wholesale produce system handled 22,500 carloads valued at \$34,000,000; and the volume is known to have increased considerably since then.

Alco and Sporlan expansion valves.

Alco solenoids, Mueller, Sporlan and Imperial driers, liquid indicators, and Minneapolis-Honeywell air switches are consistent throughout the refrigeration installations in the Market. An unusual feature of the cooling tower installations on the roof deck is a by-pass of the tower return water from the nozzles to the ponds to prevent tower ice accumulation and nozzle freeze-ups in the suddenly varying Texas weather. This is accomplished by a Minneapolis-Honeywell three-way valve with a thermostat sensing lowered temperature of

for all water cooling -- use Filtrine -sell more condensing units

"DO" Orders are Vital!

For all Federal Agencies . . . All Armed Services Filtrine products meet government specifications.

Promote your own condensing unit sales with Filtrine's 20-year-life construction . . . high capacity . . . Super Storage . . . more than 40 years' dependability.

COOLERS FOR MESS HALLS - CAFETERIAS



Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water. Taste-Master

Sell your condensing unit with Filtrine

COOLERS FOR X-RAY & PHOTOGRAPHY

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floormounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

Sell your condensing unit! Systems for drinking or processing water-completely packaged with pump, controls, your condensing unit factory installed. Capacities 5-400 g.p.h.; storage 5-150 gals. Filters and Rectifier-De-chlorinators (extra) to insure taste-free, sparkling water.



MC-14-S MC-43-S

MC-25-S MC-40-S





Typical "Packaged"
Circulating Chilled Water System

REMOTE COOLERS

Sell your condensing unit with remote models for new and replacement jobs-all applications. Capacities 10-1000 g.p.h.; storage 7 300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



Get our new "How to Sell DO Jobs" -write Dept. RF2



FILTRINE MANUFACTURING COMPANY · BROOKLYN 5 · N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 35 on Reader Service Card for more information

the tower pond water.

The Brunner, Recold, Peerless and Thermotrol equipment, as well as the Alco, Sporlan, Mueller and Honeywell refrigeration accessories, were furnished to the contractors by United Refrigeration Co., San Antonio wholesaler.

The Editors acknowledge with thanks the assistance of Boone Crisp, of United Refrigeration Co., in assembling and preparing the information of the equipment used in the San Antonio Market, and in supplying photographs of the installations. ABOUT PEOPLE . . .

Continued from page 40

refrigeration schools, and has just recently resigned from his position as advertising director for Nickerson & Collins Co., publishers. He brings to Allin a thorough knowledge of advertising, promotion, engineering and service as applied to the refrigeration industry. Hendrickson is well known by contractors, service men, and wholesalers in the mid-western and Pacific coast areas through his con-

tacts as a member of the Refrigeration Service Engineers Society.

Kramer Trenton Co. has announced the appointment of Arthur A. Reed

as a sales representative for the State of Michigan. He will handle Kramer's complete line of heat transfer products for various types of refrigeration and air conditioning ap-



plication. Reed's engineering background consists of twenty-four years of varied refrigeration and air conditioning experience as a sales engineer in the Mid-West and New England. For the last six years, he was associated with the Clark Bridgman Company of Chicago.

W. C. Dunn, president of Ajax Corp. of America, has announced the appointment of James W. Stewart as general manager of the company and M. Franz Breitling as sales manager. Stewart has been in the re-



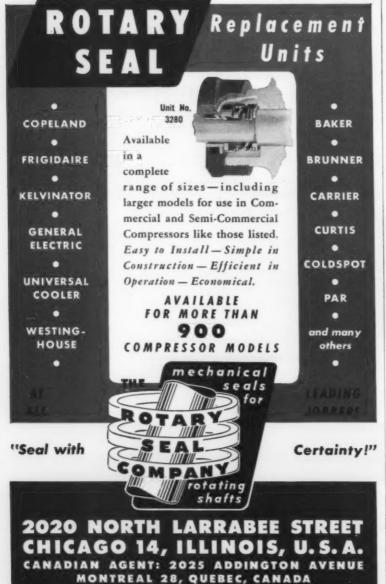




M. F. Breitling

frigeration and air conditioning business in various capacities for twenty years. For two years previous to assuming his present duties, Sewart was an Ajax distributor in the New York City area. Prior to his connection with the Ajax organization, he was for several years Eastern Regional Manager for Standard Air Conditioning Inc. Preceding his advancement to the position of sales manager, Breitling was a district manager for Ajax.

Appointment of two additional members to its sales department has been announced by Remington Air Conditioning Div., Remington Corp.



Circle No. 37 on Reader Service Card for more information

Anthony G. Masiello has been named assistant to the general sales

A. G. Masiel



manager, and C. Kenneth Juno has assumed the duties of advertising

manager. Masiello comes to Remington with a background of 12 years in the air conditioning field, having joined the Carrier organization in 1939 and served in various capacities, most recent of which was manager of self-contained unit sales for the Philadelphia district. Juno, a veteran of 12 years in the advertising field, has been with Remington for the past few months and has been instrumental in setting up the company's new advertising department.

BUY FROM YOUR REFRIGERATION WHOLESALER

J. F. Knoff, general sales manager of Airtemp Div., Chrysler Corp., has



E I Loughne



V T Book

announced the appointment of F. J. Laughna and M. T. Bard as assistant sales managers and S. R. Prugh as administrative assistant to the general sales man-

ager. Laughna



S. R. Prug

has been with Chrysler for 18 years. He moved to Airtemp in 1940 as assistant to the merchandising manager and in 1950 he was promoted to administrative assistant to the vice president, the position he held until his present appointment. Bard joined Airtemp in 1941 as director of commercial refrigeration sales. In 1947 he was made director of national account sales, and since 1950 he has been director of both national account and packaged air conditioning sales. Prugh joined Airtemp in 1942 in the time study department. In 1943 he was transferred to the budget department and has been assistant budget director since 1946.

Knoff also announced these additional changes in the sales staff: A. F. Ward, sales director, to manager of sales training; W. B. Magill, advertising supervisor, to manager of advertising; J. J. McMahon, sales promotion supervisor, to manager of sales promotion; L. E. Epley, sales supervisor, to manager of sales records; M. J. Leonard, product supervisor, to assistant manager of application engineering and H. P. Young, field engineer, to special heating representative.

Robert M. Stevens has been named advertising manager of Servel, Inc., manufacturer of refrigerators, water heaters and air conditioners.

POSTON

BOSTON PORTLAND, MAINE

"Fits right into our scheme," says Chester Borden (right) vice-president and treasurer of A. E. Borden Co., Inc.



MINNEAPOLIS

"Marsh meets our needs supremely well," says Frank R. Pond (right) president of Refrigeration & Industrial Supply Co.



NEW ORLEANS MOBILE

"Marsh exclusively here," says Iddo W. Lampton (right) partner and general manager, Enochs Sales Company.



ALL A-B-O-A-R-D!!

The story is the same all over the U.S. Here are a few of the scores of wholesalers who all say in effect "We like the line our customers like." There is one near you handling the full line of Marsh testing instruments, gauges, thermometers; also Marsh-Electrimatic regulators and solenoid valves.

MARSH

See Your Wholesaler

INSTRUMENT CO. Sales affiliate of Jas. P. Marsh Corp.

Dept. P, Skokie, III.



CLEVELAND, AKRON YOUNGSTOWN

"They DO pick Marsh," says Jim Downs (right) president of Refrigeration Supplies, Inc.



PITTSBURGH CINCINNATI CLEVELAND COLUMBUS, TOLEDO

"Our customers sold us on Marsh," says John Blair (left) of Williams & Co., Inc.



INDIANAPOLIS FORT WAYNE SOUTH BEND EVANSVILLE LOUISVILLE

"Marsh speaks our customers' language," says F. S. Langsenkamp Jr., (center) of F. H. Langsenkamp Co.



LOS ANGELES

"Marsh has made a lot of friends for us," says Bob Shaw (center) manager of Authorized Supply Co.



SAN FRANCISCO OAKLAND SACRAMENTO

"They must like the Marsh line the way they go for it," says Bill Davidson (center) general manager of Hinshaw Supply Co.



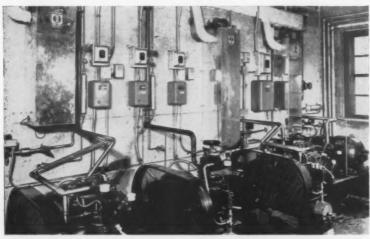
CHICAGO

"It's a pleasure to sell equipment that stays sold," says Bill Kramer (right) of Chase Supply Co.

Refrigeration for Meat Industry Research



ONE OF FOUR freezer rooms recently installed in the American Meat Institute Foundation on the University of Chicago campus. In the room shown, temperatures from -10 F to plus 10 F, plus or minus 1½ F, can be maintained. The equipment is powered by a 3 hp G-E condensing unit and equipped with a Kramer Model TV210 Thermobank.



EQUIPMENT ROOM of the American Meat Institute Foundation, showing location of Thermobanks in relation to the four G-E condensing units. The units, ranging in capacity from $1\frac{1}{2}$ to 10 hp, hold temperatures as follows (within a range of plus or minus $1\frac{1}{2}$, F): -40 to -20 F, -20 to 9F, -10 to plus 10 F, and 10 to 32 F. Kramer Thermobank defrosting equipment is used in all four rooms.

Four Separate Refrigerated Rooms Serve Meat Institute Foundation

A COMPLETE range of temperatures from 32 F to -40 F is maintained by the refrigeration system installed in the new building of the American Meat Institute Foundation on the University of Chicago campus.

To assure completely satisfactory performance of the equipment, the system was designed to use four separate refrigerators covering temperature ranges as follows: (1) —40 F

to —20 F; (2) —20 F to 0 F; (3) —10 F to plus 10 F; and (4) 10 to 32 F.

To assure trouble-free operation and complete automatic defrosting, the Kramer Trenton "Thermobank" system was used in all four refrigera-

Temperatures of the various rooms are adjustable and controlled by thermostats, as manufactured by the United Electrical Control Co. The refrigeration installation was made by Refrigeration Systems, Inc., Chicago.

The American Meat Institute Foundation is an independent organization sponsored by the meat industry, working under an agreement with the University of Chicago. The foundation conducts its program of research and education in harmony with the program of the university, and is considered a step forward in the development of scientific facts concerning meat and other products of the livestock and meat industry.

NEW HUMIDIFIER ASSOCIATION FORMED

Formation of a new professional society to be known as the "Humidifier Association" has recently been announced by members of the executive committee.

The committee members are all executives of companies actively engaged in research in winter air conditioning. They are: Marion Levy, Viking Air Conditioning Corp., Cleveland; Arthur Evans, Skuttle Mfg. Co., Detroit; Jack Carr, Maid-O'-Mist, Inc., Chicago; and J. W. Galloway, Automatic Humidifier Co., Cedar Falls, Iowa.

Efforts of the Humidifier Association, as outlined, are planned for three separate branches of activity.

 Research: Directing and encouraging both engineering and medical research into the proper method and the effects of the addition of controlled humidity to parched winter air.

Training: Instruction to warmair heating dealers on the proper installation and sale of automatic furnace humidifiers.

3. Education: A consumer publicity campaign to inform the homeowner of fuel saving, structure preservation, and health benefits which can be enjoyed by the addition of an automatic furnace humidifier.

Headquarters of the association are at 312 Ferguson Building, Cleveland.

SHERER DISTRIBUTOR IN MAINE DIES

Arthur F. Briggs, president of A. F. Briggs Co., Portland, Me., died while on a hunting trip in New Brunswick, Canada, Oct. 13. The Briggs organization has been the Maine distributor for Sherer commercial refrigerators since 1935.

Good to the last

Eastern hot CONDENSATE DISPOSAL UNIT



Automatically removes hot condensate from air conditioning units

This completely automatic unit disposes of hot liquid condensate at temperatures up to 200-210F. It's easily installed in air conditioning, or similar systems, where normal gravity drain-off is not possible. Qujet and reliable, it requires no oiling or maintenance during its long life. Low operating cost and rust proof construction make this compact and rugged unit a worthy investment in convenience. Complete catalog material on request.

SPECIFICATIONS

TANK: Capacity — Approximately 0.8 gallons.
Brass with black enamel outside.

PUMP: Bronze centrifugal pump. Delivery approximately 4½ GPM at O PSI and shut off of 12½ PSI.

MOTOR: 1/40 HP, 3450 RPM, single phase, 60 cycles, 115 volt, totally enclosed, ball bearing, capacitor start motor.

WEIGHT: 23 pounds.

control: A switch, operated by a float, is so set that the pump will pump out approximately 0.4 gallons of condensate at each operation. A check valve built into the outlet prevents the outlet line draining back into the tank.

WIRING: The unit is provided with a knockout hole for attachment of BX Cable for the motor. All wiring is enclosed in unit.

Eastern industries, inc.

296 ELM STREET, NEW HAVEN, CONNECTICUT



MONEY-SAVING FEATURES of **JAMISON** doors meet Super Market needs!

TRACK DOOR Speeds Handling



The Jamison Track Door permits fast, economical movement in and out of storage of the large volume of meats and other perishables sold in the modern super market. Stainless steel cladding on door assures the finest in sanitation—easy to keep clean.

DOOR CLOSER Saves Refrigeration

The Jamison automatic door closer, an optional feature, was selected because of its economy. It keeps entry of warm, moist air to a minimum—reduces moisture condensation, saves refrigeration cost. If you want to save money and headaches with your cold storage doors, consult Jamison and insist on Jamison in your specifications. Jamison Cold Storage Door Company, Hagerstown, Maryland, U.S.A.



The Leader For Over Fifty Years

Circle No. 38 on Reader Service Card



The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

Shaft Seals . . . A new stock and resale price list covering the Rotary line of mechanical seals for rotating shafts has been published by Rotary Seal Co.

Circle No. 100 on Reader Service Card

Remote Room Conditioners... Five different types of installations are diagrammed in this 4-page catalog insert (Series FC-210) describing, illustrating, and listing specifications of "Flow-Temp" convectors for summer ar conditioning or for use with heat pumps in year-around systems. A table of basic capacity ratings covers all three models. Available from Acme Industries, Inc.

Circle No. 101 on Reader Service Card

Condensing Unit Data . . . Page after page of general application and engineering data features the pocketsize data books on "Supermetic" condensing units which Servel, Inc. has designed as a handy reference manual for refrigeration servicemen, application engineers, and salesmen. Complete specifications and capacities covering all current condensing unit sizes from ¼ to 3 hp. are included in a condensed section of the book, along with full information on factory warranty plans, installation instructions, and helpful maintenance suggestions.

Circle No. 102 on Reader Service Card

Thermometers . . . A 4-page specification sheet (No. 600) describing and illustrating Brown indicating and recording thermometers. Construction and engineering details are included, along with diagrams of variouse bulb styles. Available from Minneapolis-Honeywell Regulator Co., Industrial Div.

Circle No. 103 on Reader Service Card

Metal Treatment . . . Advantages of low-temperature metal treatment are described in a new 8-page folder issued by Sub-Zero Products Mfg. Div., Deepfreeze Distributing Corp. Among processes covered are chilling for stabilization of steel, increasing perishable tool life, and shrink fit assembly. Two pages of technical data on methods and results of low-

temperature treatment of various metals and alloys is included. Standard and special models of chilling units for this purpose are illustrated and described.

Circle No. 104 on Reader Service Card

Accessories . . . A number of new products including combinations of dryers and strainers with capillary tubes and spun dryers, strainers and accumulators with soldered connections, are included in the new catalog of refrigeration accessories issued by Wabash Mfg. Co.

Circle No. 105 on Reader Service Card

Low Side Data . . . A pocket-size data book devoted exclusively to low side refrigeration, with 52 pages of information on commercial refrigeration and air condtioning equpment and engineering data for use by servicemen and contractors. In addition to complete data on the full line of "Recold" heat transfer equipment, the book has many pages showing how to figure refrigerator loads of various dimensions and insulation thicknesses. Much information on storage requirements for perishable foods also is included. Available from Refrigeration Engineering, Inc.

Circle No. 106 on Reader Service Card

Walk-In Units... A selection chart showing the Btu requirements for walk-in coolers ranging in size from 6 x 6 to 12 x 12 is featured in this specification sheet covering the "Kool-Rite" package refrigeration systems for walk-in cooler application. These units are illustrated and described, and installation steps are diagrammed. Available from Kool-Rite Co.

Circle No. 107 on Reader Service Card

Drill Bushings... A new reference handbook issued by Ace Drill Bushing Co. containing copyrighted comparison tables providing cross-reference to some 3000 symbols used by leading manufacturers, and comparing their symbols to actual ASA standard sizes and specifications as used by Ace.

Circle No. 108 on Reader Service Card

Steel Tubing ... Technical data on tubing for the petroleum, chemical, pulp and paper, food and pharmaceutical processing industries is presented in a new 8-page illustrated bulletin (TA 1559) published by Babcock & Wilcox Tube Co. Includes analyses and tables of physical and mechanical properties, as well as application data for 20 popular carbon, alloy and stainless tubing steels for use in heat exchangers, condensers, boilers, conveying lines, and processing equipment.

Circle No. 109 on Reader Service Card

Electric Hammer and Drill . . . A four-page bulletin (No. 510) issued by Wodack Electric Tool Corp. illustrating and describing the various jobs that can be done with its "Do-All" electric hammer and drill. Bulletin lists specifications of the tools, and shows various accessories that can be had to go along with tool, together with their catalog numbers. Usage in various jobs is also pictured.

Circle No. 110 on Reader Service Card

Controls... Designed as a handy reference for selecting control equipment to meet the most rigid specifications is this complete and informative catalog (F-1753-3) published by Barber-Colman Co. Thermostats, motoroperated valves, and accessories for heating, ventilating, and air conditioning applications are covered.

Circle No. 111 on Reader Service Card

Supplemental Catalog ... A 20-page supplemental catalog issued by McDonnell & Miller, Inc., covering products not included in its standard condensed catalog. Contains facts about liquid level controls for special applications, float controls and related problems. Useful in solving special boiler water level control, liquid level control, and relief valve problems.

Circle No. 112 on Reader Service Card

Screw Anchors . . . A pocket-size folder describing the characteristics and use of "Scru-Tite" plastic screw anchors. Step-by-step instructions are given for their use and a complete table correlating anchor sizes with screw and drill sizes is presented. Available from Mastercraft Products.

Circle No. 113 on Reader Service Card

General Purpose Pump... A catalog (D851) covering the new line of general purpose centrifugal pumps announced by Economy Pumps, Inc., for such applications as small cooling towers, hot water heating systems, and booster or process pumping. Specifications are listed and application information provided.

Circle No. 114 on Reader Service Card

KELVINATOR announces -



FREON-22 Condensing Units!



Now • More BTU's per dollar!

- · Same unit for both medium and low temperature application (reduces inventory)!
- High in capacity-more compact, lighter in weight!
- Specially engineered for F-22!
- · Kelvinator's exclusive, positive lubrication system!
- Traditional Kelvinator quality and performance-at lower prices!

Covered by Kelvinator's Unsurpassed 5-Year Warranty!

MODEL 3S1S2-Low starting torquecapillary tube applications.





Profit Today . . . Build for Tomorrow with

chinator



RELVINATOR BEVERAGE COOLERS









RELYMATOR OPEN TYPE COMBENSING UNITS (% H. P. to 5 H. P.)

Circle No. 40 on Reader Service Card for more information

and AIR CONDITIONING . JANUARY, 1952



Size for size, the Sporlan Catch-All with its scientifically molded porous cylinder offers the greatest filtering area because its end surface is augmented by its complete cylindrical surface into a tri-dimensional filtering area, filtering out any foreign matter as minute as 9 microns with negligible pressure drop!

Sporlan Catch-Alls are activated to the highest degree of dryness after they are completely assembled by subjecting them to a temperature of over 500° F. for a minimum of four hours! The Sporlan Catch-Alls are then sealed with moisture proof seals to prevent any loss of activation before installation.

When you want perfectly clean, perfectly dry refrigeration systems . . . install

SPORLAN Catch-Alls

the perfect filter-driers and GET PEAK PERFORMANCE ON ALL INSTALLATIONS

Catch-Alls are available in all sizes at all Sporlan wholesalers

SPORLAN SAMPANY



AND HERE ARE 5 ADDITIONAL EXCLUSIVE CATCH-ALL FEATURES

- 1. They cannot powder!
- 2. They cannot pack!
- 3. The refrigerant cannot channel around the desiccant!
- 4. The unique, porous Catch-All cylinders are molded of minute particles of a highly efficient desiccant, the efficiency of which is greater than that of the same desiccant in granular form.
- 5. They dry down to a low end point...a point so low that any remaining moisture is absolutely harmless!

7525 SUSSEX AVENUE • • • ST. LOUIS 17, MISSOURI

Circle No. 41 on Reader Service Card for more information

PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Low-Temp Wall Case

Product: Model FGW-5274 glass front display cabinet designed to give positive refrigeration to every package of frozen food or ice cream.

Manufacturer: Penguin Sales, Detroit, Mich.

Features: Five refrigerated divider plates have special attachment for quick, easy defrosting. All aluminum liner. Fibreglass insulation with positive moisture barrier on all four sides and bottom. Refrigerant controlled by capillary line, accumulator, heat exchanger assembly which greatly increases efficiency of ½-hp F-22 condensing unit. Temperature controlled by factory adjusted thermostat. Weld-



ed steel cabinet with baked enamel finish. Glass front gives full visual display. Angled mirror and price panel. Available in 44, 54, and 74-inch lengths, with overall height of 50 inches and overall width of 28 inches.

Circle No. 130 on Reader Service Card

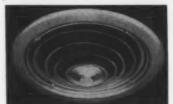
Adjustable Diffuser

Product: "Flexiflo" adjustable air diffuser.

Manujacturer: Universal Diffuser Corp., New York, N.Y.

Features: Variable effective area permits adjustment of air flow for any setting from zero to full volume, or changes in the air throw without changing the characteristic air diffusion pattern. Can handle greater volume of air than other types of diffus-

ers having same neck area. Consists of double-flanged conical spiral in which continuous blades are flexibly held in position by means of radial spokes and connected to main cross



bar by means of a threaded center rod. By turning center rod knob, blades may be shifted to any position. Equalizing deflector is integral part of equipment, so no additional work is required to put them in place. Air on leaving blades travels parallel to ceiling, with high appirating effect resulting in a large entrainment of room air. Available in 11 sizes, largest of which is capable of handling up to 9000 cfm with a throw of over 48 feet.

Remote Water Cooler

Product: Remote type drinking water cooler designed to emphasize economy and versatility in installation.

Manufacturer: Temprite Products Corp., Birmingham, Mich.

Features: Cooler, storage tank, compressor and condenser are mounted together on a sturdy metal base. Unit may be installed in virtually any location. Only installation necessary is to connect water inlet pipe to cooler, water outlet pipe to separate fountain or faucet, and plug in power cord. Currently available in 3, 5, and 10-gallon capacities. Especially suited to small space requirements in commercial, industrial, or residential applications. As replacement for centralized drinking water systems, these coolers can eliminate major overhauling of plumbing system. Each coolercan economically supply one or more

existing wall fountains or bubblers. Cooler and storage tank constructed of welded stainless steel. Specially designed water inlet tube directs flow of incoming water against refrigerat-



ed surface. Copper refrigeration coils bonded by an alloy dip to outside of tank. Water directed to bottom of cooler and leaves at top, eliminating any possibility of trapped air in system. Storage tank design prevents cooler damage in event of accidental freeze-up.

Circle No. 132 on Reader Service Card

Self-Spray Lacquer

Product: Self-spray lacquer for refrigeration and appliance industry.

Manufacturer: Plasti-Kote, Inc.,

Cleveland, Ohio.



Features: Available in both appliance white and black. Paint and pressure all in one container. All the user need do is to press the trigger on the top of the container and spray. Lacquer dries in 10 minutes.

Circle No. 133 on Reader Service Card

Anti-Fog Compound

Product: Anti-fog compound.

Manufacturer: Merix Chemical
Co., Chicago, Ill.

Features: Prevents fog, mist, and steam from forming on any glass or plastic surfaces. When applied to the surface to be protected, this new solution forms an invisible film which keeps surface fog-free for indefinite periods. Applicable to display cabinet glass, store windows, mirrors, etc. Non-toxic, non-acid, non-inflamable. Easily applied by simply spreading on the surface with cotton batting or a soft cloth. When applied it removes all forms of dust, dirt, grease, or fingerprints easily and quickly from glass or softest plastic surfaces without harmful effects. Solution keeps indefinitely.

Circle No. 134 on Reader Service Card

Freon Gauges

Product: Standard Freon gauges for installation on Freon-12 refrigerating machines.

Manufacturer: Marshalltown Mfg. Co., Marshalltown, Iowa.

Features: Drawn steel case finished in black enamel with 2½ and 3½-inch dial sizes. Trumpet brass bourdon tube. Bronze movement has independent mounting. Construction includes bronze top and bottom plates and bronze sector with a nickel silver pinion and sector staff. ¼-inch male bottom connection is standard, but ½-inch male bottom connection can

be furnished on 2½-inch size and ¼-inch male center back connection on both sizes. Standard dials are of double scale type with one scale printed in red showing the corresponding temperature in degrees F.

Circle No. 135 on Reader Service Card

Photographic Cooler

Product: Filter-cooler for cooling and purification of water in photographic processing.

Manufacturer: Filtrine Mfg. Co., Brooklyn, N.Y.

Features: Built for installation with single or multiple photographic,



x-ray, lithography, and photo-engravin sinks, this unit maintains constant 68-deree water temperature and eliminates minute abrasive particles from the processing water. Unique storage feature provides large reserve of correct temperature water for immediate full-volume start-up and for emergency requirements, and insures longcycle machine operation. Pre-cooling unit permits waste water to flow through a double-wall tube and reduce temperature of water entering cooler. Available in horizontal design for installation under sink or counter, or in vertical style with stainless steel work table top. Built in capacities of from 40 to 160 gph. for single sink operation and up to 400 gph. for multiple applications.

Circle No. 136 on Reader Service Card

Sliding Door

Product: Sliding cold storage door.

Manufacturer: Belt Ice Corp., Seattle, Wash.

Features: Door swings out and up and slides very readily on track. On coming back into closed position it

Prest-O-Lite HALIDE Leak Detector



Quick—Always ready for use. Lights instantly. Locates exact source of leak in a few seconds. Avoids waste of refrigerant gas and costly shut-downs of equipment. An indispensable test unit for service and installation kits.

Sure—Reacts instantly to smallest concentrations of any of the non-combustible halide refrigerant gases (F-11, F-12, F-21, F-113, F-114, Carrene) commonly used in domestic or industrial systems.

Simple—Small, light, and handy. Easy to use anywhere. Durably built and dependable. No delicate parts to get out of order.

• For more details, see your jobber or write Linde Air Products Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd St., New York 17, N. Y.

"Prest-O-Lite" is a trade-mark of Union Carbide and Carbon Corporation,

Order from your local Jobber

Circle No. 42 on Reader Service Card | for More Information



Federal the complete line for every refrigeration need...

- the name that's known all over the nation.
- smartly designed, for efficient performance.
- pioneers in refrigeration.
- ... Write today for available Federal DEALER TERRITORIES.

FEDERAL REFRIGERATOR
MANUFACTURING CO.
WAUKESHA, WISCONSIN

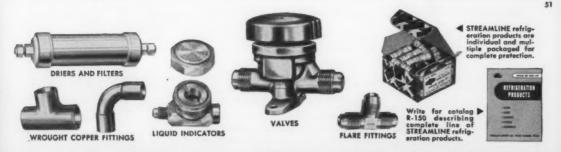


Circle No. 43 on Reader Service Card



IT PAYS to climb on the MUELLER BRASS CO. band wagon for . . .

- A full and complete quality line of protectively packaged refrigeration driers, valves, fittings and accessories — stocked and sold by your refrigeration wholesaler.
- Complete manufacturing facilities from raw material to delivered product under the strict control of Mueller Brass Co. craftsmen, technicians and engineers.
- A large, well-trained force of sales and field engineers to coordinate the laboratory and manufacturing facilities of the Mueller Brass Co. with your needs.



MUELLER BRASS CO., PORT HURON 12, MICHIGAN



EXACT DUPLICATES of original manufacturors



WRITE FOR CATALOG SOR

MANUFACTURING CO. SOOT SIXTH AVENUE DES MOINES 13, IOWA



Circle No. 46 on Reader Service Card

drops into wedges, and wedges itself tight by virtue of its own weight. Eliminates necessity of braces required on swinging doors. Built on sound refrigeration principles. Complete envelope of cork acts as temperature break around door to prevent frosting on the exposed parts of the door where it comes in contact with the jamb. The door frame also is equipped with temperature breaks which prevent the passage of heat through the jamb and consequent icing.

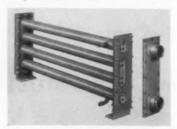
Circle No. 137 on Reader Service Card

Cleanable Condenser

Product: Multiple cleanable counterflow condenser designed to follow the trend to more compact refrigeration units.

Manufacturer: Standard Refrigeration Co., Chicago, Ill.

Features: Due to its unique, sturdy construction, this condenser



will work satisfactorily in all parts of the country. Where water temperatures are extremely high, more water can be circulated through the multiple water tubes which are encircled by the refrigerant tube, thereby increasing the heat transfer. Water tubes and refrigerant tubes are easily accessible for installation, and water tubes can be easily cleaned by simple removal of headers. No restricted passages, thus less pressure drop in both water and refrigerant lines.

Circle No. 138 on Reader Service Card

Ice Cuber

Product: Automatic ice cube maker for commercial use.

Manufacturer: Frigidaire Div., General Motors Corp., Dayton, Ohio.

Features: Manufactures up to 5000 clear, solid, sanitary rectangular cubes in 24-hour period. Compact, all-steel cabinet measures only 441/4 inches long, 311/2 inches wide, and 385% inches high. Exterior is finished

in gray dulux with black acid-resisting porcelain-finished top. Top can be used for display, storage, or working surface. Complete interior finished in lifetime porcelain. Access to storage bin provided by insulated door. Inside front of bin pulls out and down to provide easier access to cubes. Storage capacity of 100



pounds. Cabinet walls around storage section are insulated with 3 inches of fibrous glass, keeping cubes from melting or sticking together. Operation is simple and automatic. Ice is frozen in solid slab, released by hot gas defrosting, and drops onto cutting grid consisting of low voltage electrically heated wires. Slab is cubed by combination of gravity and heat and cubes drop into storage bin. Ice manufacturing process automatically begins again as soon as slab has been released. Removable grille provides access to 1/3-hp compressor, condenser, controls, circulating water system and water tank in machine compartment.

Circle No. 139 on Reader Service Card

Solenoid Valve

Product: Marsh-Electrimatic solenoid valve series Type 60, 65, and 67.

Manufacturer: Jas. P. Marsh Corp., Skokie, Ill.

Features: Advanced design, stur-



dy packless construction, smooth and quiet operation, and particularly tight seating. Valve bodies machined from brass bar stock which greatly adds to strength and safeguards them from distortion during installation. Coils are made moisture and frost proof by a special process and are liberally wound so that they can be energized indefinitely without overheating. Both valve stem and seat are non-magnetic to prevent attracting particles which often prevent tight seating in valves not so constructed. Valves are normally closed, and open only when energized. Available in full range of coil voltages and cycles. Series 60 are direct-acting valves for maximum pressure of 150 psi. Series 65 and 67 are pilot operated valves for maximum pressure of 200 psi.

Circle No. 140 on Reader Service Card

Replacement Rods

Product: New line of connecting rods for sealed Unit Parts Co., Inc., New York, N. Y.

Features: Connecting rods available for replacement in hermetic condensing units such as Tecumseh, Chieftain, Kelvinator, Stewart Warner, Mills and Murphy. Availability of these replacement connecting rods to the independent rebuilder is aimed at aiding in the salvage of units previously considered beyond repair.

Circle No. 141 on Reader Service Card

Spot Display Case

Product: Frozen food and ice cream cabinet for spot display merchandising.

Manufacturer: Eskimo Kooler Corp., Chicago, Ill.

Features: Large capacity makes



it adaptable as either spot display in large markets of main cabinet for smaller stores. Completely open top affords full view of every package. Wrap-around refrigeration on all four sides, bottom, and four divider plates with removable defrost caps. Four-pane Thermopane front prevents icing or fogging. Measures 56 inches long and 30 inches wide. Choice of shelf or picture superstructure available at no extra cost. 11 cu.ft. capacity. Powered by 1/2-hp hermetic unit. Finished in white baked enamel with stainless steel trim.

Circle No. 142 on Reader Service Card

Heating Control

Product: "Weather-Flo" indooroutdoor modulating heating control.

Manufacturer: Automatic Devices Co., Inc., Western Springs, Ill.

Features: An outdoor weather reading in combination with a temperature measuring bulb in the heating system changes the rate of heat flow with every change of the weather, in anticipation of the heating needs of the building. A built-in fan or pump switch provides for a continuous reg-



Circle No. 48 on Reader Service Card



ulated flow of heat to the building as long as weather conditions require any heating. Heating lags caused by overshooting and underheating, so common to conventional inside controls, are eliminated. This gives constant, uniform heating level at desired temperature from the least amount of

Wester-flo

fuel. Completely adjustable on the job for different heating design temperatures, different operating temperature ranges, different minimum temperatures, and heat cut-off. Simple to install and tamper-proof. Designed for operation with all fuels and all heating systems, including radiant panel systems, in either single family dwellings or multiple buildings.

Circle No. 143 on Reader Service Card

Circulating Pump

Product: "Magnaflow" circulating pump.

Manufacturer: Magnaflow Pump

Corp., New York, N. Y.

Features: Simple and profitable to install. Has only one moving part. Requires no base, as it is simply connected into the line like a short piece of pipe. No vibration, no sound, no unbalanced weight. Install at any angle. Fits into 9 x 9 x 7-inch space. Flanges, floated in rubber, are interchangeable for pipe sizes up to 2 inches. No stuffing boxes, no couplings, no alignment problems, no possibility of leaks. Not even oiling is required, as pump is lubricated by action of fluid being pumped. Pumps anything from 50% sulphuric acid to liquid gases.

Circle No. 144 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER Glass Reach-In Door

Product: "Display-All" glass display doors for reach-in refrigerators.

Manufacturer: American Glass Refrigerator Door Co., Los Angeles, Calif

Features: Places emphasis on efficient insulation and sound refrigerator design, but at same time provides unobstructed display of refrigerated



produce and easy access to the case. Each door constructed of two-lite Thermopane glass panels framed with a combination of highly polished ex-





Circle No. 50 on Reader Service Card

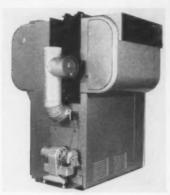
truded aluminum and heavy rubber insulation. Assembled in such a manner as to expose only rubber and glass to the fixture interior and polished aluminum and glass to the public. Built in units, each consisting of a 23 x 525/8-inch mullion frame and door. Manufacturer can interlock as many frames as desired without use of screws or bolts. Doors hung in place by snapping on to full length extruded aluminum piano hinges. No screws needed in hanging. Chromeplated die case latch handle affords positive closing but has light opening touch.

Circle No. 145 on Reader Service Card

Year-Around Conditioner

Product: Oil operated "all-year" air conditioner which, like its gas and steam predecessors, uses a single source of heat for both summer cooling and winter warmth.

Manufacturer: Servel, Inc., Evansville, Ind.



Features: Makes year-around conditioning a reality for areas where gas service is not available or where oil is basic fuel for heating. Has capacity of 5.4 tons per day, and heating output of 96,000 Btu per hour. Large enough to cool or heat a 7 or 8-room house with from 17,000 to 27,000 cu.ft. of space. In addition to temperature, unit controls air humidity, cleanliness, and circulation. By combining low-pressure oil burner with compact steam generator in an efficient absorption system, this unit does away with motor, compressor, and moving parts.

Circle No. 146 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

MAGOR, LYNNE NAMED YORK CORP. OFFICERS

Stewart E. Lauer, president of York Corp., has announced the election of Donald M. Magor to the office of vice president and controller and William F. Lynne as secretary and treasurer. Magor has been controller of the corporation since 1939 and has served as a member of the general management committee since that time.

His new duties embrace the responsibility for all corporation accounting, the control of budgets, auditing,

tax management and related financial matters.

Lynne has ben associated with the corporation since 1935 in the accounting end of the business. He became assistant controller in 1939, subsequently assistant secretary and secretary.

The position of assistant controller which Lynne is vacating will be filled by R. J. Halloran.

BUY FROM YOUR REFRIGERATION WHOLESALER



Locks, Strikes and Hinges that Contribute to Quality in the World's Finest Refrigerators

Grand Rapids Brass Company

GRAND RAPIDS, MICHIGAN

A DIVISION OF CRAMPTON MANUFACTURING COMPANY



There's always one that's better... and in controls it's Ranco!

Ranco controls cut a fancy sales figure in the refrigeration industry—more Ranco controls are in use than any other kind! Why? Because Ranco controls are available for more than 4,000 replacement installations... because they mean greater customer satisfaction... because servicemen can depend on them to deliver accurate, trouble-free service year after year.

Ranco Inc.



JANUARY, 1952 . COMMERCIAL REFRIGERATION

COLUMBUS 1 OHIO

WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS

HERE'S HOW!

Edited by Warren W. Farr

Your Most Important Job: Creating Customer Confidence

Probably the most important function of the air conditioning and refrigeration service man is establishing customer confidence in himself and in the company he represents. The service man can rapidly gain or lose business standing for himself and the dealer by his attitude, his appearance, and his degree of competence as shown by the way in which he does his work.

A neat appearance, both as to the service man's person and in his tools and service equipment, creates a good first impression. Here, these things say, is a man who knows his job, and who works for a quality sales and service concern.

Completeness of service tools is another means the customer uses to "size up" the service man, and get an impression of how well he knows his work.

There are several other points that enter into this all-important matter of creating customer confidence in you and your company. We'll deal with them, point by point, in articles in succeeding issues.

9 do it this way...

HERE is my way to tighten belts on a unit that has no belt tightener on it.

I use the bumper jack out of my panel truck, and have found it far superior to an ordinary bar.

On some units that have the motor mounted on channel iron I have found that a "C" elamp is a very good tool.

These tricks save a lot of energy and often keep you a lot cleaner. Donald C. Condee, Mt. Sterling, Ill. WANT TO EARN \$5?



You don't have to be a writer or a literary genius! Just jot down some of the shortcuts you've developed in your maintenance or installation work and send them to HERE'S HOW EDITOR, COMMERCIAL REFRICERATION AND AIR CONDITIONING. Your \$5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

Practical Pointers On Capillary Tube Use

The capillary tube is an extremely simple device, and its use permits simplification and cost reduction of the small hermetic refrigeration system.

Use of the capillary will allow the use of the low cost hermetic-type compressor and condensing unit, which have been specifically designed for capillary tube application, also permitting elimination of the float valve or expansion valve and the liquid receiver, with reduction in cost and service difficulties.

Because of these advantages, an increasing number, of refrigeration service engineers are becoming interested in the Cap tube and are attempting to convert systems to its use.

Despite the apparent simplicity of the Cap tube, one must be careful to select the proper tube and components if a successful conversion is to be made. Failure to do so will inevitably result in unsatisfactory results and service complaints.

All types of expansion valves have one thing in common: they maintain a pressure differential, making possible correct operation of the low side and high side, while metering liquid refrigerant from the high to the low side at the desired rate. It might then appear possible to simply use a small diameter liquid line which would maintain the desired pressures when

9 do it this way...

I HAVE come across several splitphase hermetic units such as Westinghouse, some models of Frigidaire, Coldspot and others that do not have capacitor type starting, and that for some reason or other tighten up or become sluggish in starting. Changing relays does not help them any.

Some of these units had been diagnosed by other service men as had units, and the customer had been advised that a new or rebuilt unit would be required.

On these units, I have found that by just putting a low capacity capacitor of around 100 mfd in the line going to the starting winding, the units will start off with a snap they should have.

The simplest way to do this is to disconnect the lead to the starting winding terminal, connect one lead of the capacitor to this terminal and then connect the lead that was removed from the starting terminal to the other lead of the capacitor. It's an easy job.

I've done this to several units, and they are all working perfectly. This same method will help also if the voltage is on the border line of being low, which causes these units to be hard to start.

-Harold L. Hill, Janesville, Wis.

metering refrigerants at the proper rate.

It is of course readily apparent that most efficient operation could not be expected under all operating conditions, since you cannot automatically change its rate of flow in accordance with either the requirements of the evaporator or the pumping capacity of the compressor.

However, it has been found that a Cap tube properly applied gives good performance under widely different conditions. Maximum efficiency is possible at only one set of operating conditions.

The Cap tube replaces the conventional liquid line and is usually soldered to the suction line, making a heat exchanger. There are no moving parts such as float valves or expansion valves.

The liquid receiver may be omitted and the refrigerant charge reduced accordingly.

The unloading action of the Cap tube system, which allows the pressures to balance during the "off"

9 do it this way...

A SERVICE man should always include an oil can in his tool box.

He carries his tools to his job, but usually has to return to his truck or car for an oil can. A customer appreciates a service man who will take the time to oil the motors after he has made whatever repairs are necessary; it makes him feel that the service man has a sincere interest in his equipment.

I fastened a squirt type oil can to one end of my tool box by a bracket that came with the oil can.

In this way, I always have an oil can handy—and the oil doesn't spill over my tools, as it might do if I kept the can inside the tool box.

-Al J. Dalpiaz, Dennison, Ohio.

cycle, permits a motor of low starting torque to be used. This also gives a low cost motor-compressor.

A liquid receiver is not generally used with a Cap tube system, and the refrigerant charge is critical. An open type compressor system is susceptible to leaks, as the lines are usually connected by flare fittings which in time may be a source of leaks. The compressor may leak through the seal.

The system must be clean and dry to prevent plugging or freeze-ups. It is possible to maintain high standards in cleanliness and dehydration as well a leak-free system when a hermetic compressor is used.

You should use capillary tubing on F-12 only unless you have a thorough understanding of the capillary tube. Do not attempt to use capillary tubing with other than hermetic-type units.

SALT CUBE DEVELOPED FOR BRINE SYSTEMS

Solving the problems that arise when loose salt is used in unit coolers,

cold air diffusers, and spray deck refrigeration, International Salt Co., Inc., Scranton, Pa., has developed a special, heavily compressed salt cube called a Sterling Kooler Kube to provide an economical and efficient method for continuously restrengthening brine and to make it easy to maintain brine at the proper Salometer reading.

In addition, the new cubes are said to eliminate the expense and trouble caused by clogging of spray nozzles, help eliminate fog in chill rooms, and save money by making possible other economies.

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PLAY IT SAFE!

SAFETY RULES FOR GRINDING MACHINE USE

By George J. Schuld International Safety Director, RSES

A GRINDING machine is one of the most useful pieces of equipment in any service shop but it also can be one of the most dangerous!

Improper use of grinding wheels—either through carelessness or ignorance—has been the cause of a high number of accidents to refrigeration servicemen resulting in serious personal injury and lost work time.

The following safety pointers on grinding wheel operation are simple but they are important. Remember, it's the fellow who thinks he "knows it all" who is most vulnerable to this type of accident. If you want to protect yourself against injuries from grinding wheels, read these safety tips well—then follow them closely!

- 1. All grinding wheels must be protected by a suitable guard. (Exception is made of portable hand grinders being used on a type of work that will not permit the use of a guard.) Before installing both new and old abrasive wheels, give them a ring test and inspect them closely. After a wheel has been installed, run it at full operating speed, under guard, for at least one minute before applying the work.
- 2. After installing a wheel, stand to one side of the grinding wheel during the run-in period. Stand to one side when dressing off or diamonding a wheel.
- 3. On all internal grinding machines, the guard over the wheel must be down and in proper adjustment before you measure, check, gauge work, or remove work from the machine.

- 4. When working on any grinder or floor stand equipped with a tool rest, take great care not to allow the part you are grinding to be caught between the wheels and the tool rest. This may break the wheel or cause serious injury to your hand. The tool rest must be kept adjusted close to the wheel. Never adjust the tool rest while the wheel is running.
- 5. Carefully check the workholding devices, especially magnetic chucks, to make sure the work is being held securely before grinding.
- Never grind on the side of a thin wheel. Grind only the type of work for which the particular wheel was designed.
- 7. Never force a wheel on its sleeve. Be sure the wheel is clamped firmly and that clamping washers are in proper position before starting the machine.
- 8. Before installing any wheel on a grinder, check the spindle speeds against the wheel speed, and never place a wheel on a spindle which is to be run at a higher speed than that specified on the wheel.
- 9. Always keep the grinding machine tables clear of loose objects. Tools and machine parts being processed belong on the bench.
- 10. Never leave abrasive wheels lying around on a bench, machine, or on the floor. These wheels must be stored in wood racks where is no possible danger of their being fractured.
- 11. Always move a grinding wheel toward the work slowly and carefully, making sure that the wheel is properly adjusted before you bring it into contact with the work.

Always Look for the Yellow and Black ROIT Boxes—the Sure Sign of a Good Refrigeration Wholesaler!

How do you tell a good refrigeration wholesaler-by his courtesy, by his speed in filling orders, by his ability to supply you with the product you want when you want it? These are all good points, but more important is the quality of the products he sells. And when a wholesaler stocks and sells DETROIT products, you know he stocks and sells the best. That's because all DETROIT Expansion Valves, Solenoid Valves and Controls are built for dependable, economical performance to supply your customers with long years of reliable troublefree performance. So always look for the familiar yellow and black DETROIT boxes on the shelf—the sure sign of a good refrigeration wholesaler!





Now Selling Both Your Independent and Chain Store Customers!

DETROIT'S successful, hard-hitting plan plugging periodic service checkups now gives you the additional benefit of big, profitable chain store coverage—a rich refrigeration conscious market! In addition, full page DETROIT advertising will continue to stress the importance of proper refrigeration maintenance to your customers in the independent grocery, meat, restaurant, dairy and ice cream fields. It's a powerful plan-building new business for refrigeration servicemen everywhere!



ASK YOUR DETROIT WHOLESALER FOR YOUR SUPPLY OF "INDUSTRY SLOGAN STICKERS!

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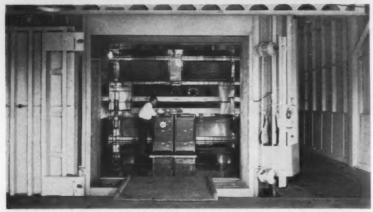
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The Weather's Really Changeable Here



WEATHER TO ORDER is supplied by this stratosphere chamber recently installed in the testing laboratory of the RCA Engineering Products Department, at Camden, N. J. The chamber, 14 feet wide and 28 feet deep, can simulate an extremely wide range of temperatures, humidities and atmospheric pressures. It was designed and built by Tenney Engineering, Inc., to RCA specifications.

How Do You Want Your Weather? Hot or Cold, This Room Has It

W HAT'LL you have in the way of weather? The rainy season in Panama, a cool day (say, -50 F) in the Antarctic, or what an interceptor encounters at 60,000 feet altitude?

You name it, set a few controls, throw a switch or two and the stratosphere chamber designed and built by Tenney Engineering, Inc., for the testing laboratory of the RCA Engineering Products Department at Camden, N. J., will produce it within the enclosed test space.

Measuring 18 feet wide by 14 feet high by 28 feet deep, the chamber will duplicate atmosphere pressures at all heights from sea level to 70,000 feet, temperatures from 185 F (more than 50 F above the highest surface temperature ever recorded on earth) to —85 F (within a few degrees of the lowest earth-surface temperature ever recorded), and humidities in the range from 10% to 95% relative.

Built in three sections weighing 11, 17 and 21 tons respectively, the chamber required removal of a wall section 18 by 20 feet before it could be installed, and special state highway department permission had to be obtained to allow its transportation from Newark to Camden.

The chamber door, weighing about 2 tons, in moved into place on rollers. Seal of door and chamber is obtained

by air cylinders located at each corner of the door to exert the required pressure. Twelve-inch steel channel sections set on 12-in. centers within all outside surfaces provide reinforcement against external pressure when the vacuum system is in operation. This vacuum system is powerful enough to reduce a 29-in. column of mercury to 1 in. Stainless steel has been used for finishing the chamber interior, to resist corrosion. Precise temperature control is maintained by an inner wall of insulation 9 in. thick.

SYNTHETIC REFRIGERANT HOSE GETS "UL" APPROVAL

Resistoflex Corp. has announced the additional listing of Resistoflex refrigerant hose assemblies under "U.L." reexamination service.

H. E. Krebs, vice president of the company, stated that fire and performance tests showed the suitability of these lines for use with Group 1 refrigerants, carbon dioxide excepted. Such assemblies, it was said, will, therefore, carry "U.L." approval for factory installations in self-contained refrigeration systems containing not more than 20 pounds of a Group 1 refrigerant.

Due to its non-metallic construction, the hose is known to be fatigue-

proof. Compar, the synthetic used for the center tube, is wholly impervious to all "Freons". The manufacturer recommends these assemblies for suction and liquid line application especially where service conditions involve troublesome vibration or constant flexing.

G-E STARTS SHIPPING PACKAGED HEAT PUMP

General Electric has made its first commercial shipment of its new packaged "heat pump" which the company said will provide effective year-round "push button weather in the home or office."

Officials said that the device was being placed on the market after more than fifteen years of development and field testing of this unusual type of heating and cooling unit.

H. M. Brundage, manager of the company's year-round air conditioning department stated that General Electric is already receiving orders for these units which will be produced on an assembly line basis. Principal market for the product, he said, is expected to be in new homes, stores and offices, with or without basements.

Brundage revealed that the G-E product differs from other heat pump designs in that it is a complete air-to-air unit that uses the outside air as a source of heat. "It automatically provides heating, cooling, dehumidification and ventilation in all seasons," he said.

At a specific thermostat setting, the device will either heat or cool the home as required by indoor conditions. The equipment senses the change in weather conditions and adjusts itself accordingly to provide ideal indoor climate.

General Electric revealed that the product is being made in both 3 and 5 horsepower sizes and that, on the average, the cost of operation will be about the same as their present individual heating and cooling equipment performing the same functions.

One of the principal advantages of the new unit, Brundage pointed out, is the fact that the heat pump provides home heating by electricity at approximately one third the cost of conventional electric heating and relieves the user entirely from all fuel supply and storage worries.

BUY FROM YOUR REFRIGERATION WHOLESALER

FOR Hard-to-Start Jobs

Requiring Low Starting Current

SPECIFY

Century

TYPE RS*
MOTORS



* Single Phase, Repulsion Start, Induction, Brush Lifting Motors

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Is Near Any CENTURY Motor Driven Equipment

Satisfactory performance of CENTURY products is assured by more than 200 CENTURY Authorized Service Stations supervised by 28 CENTURY Sales Offices.

- Facilities for immediate exchange of most CENTURY standard ratings of standard construction are available at CENTURY Authorized Service Stations.
- CENTURY Authorized Service Stations are qualified and equipped to service and repair any piece of CENTURY apparatus.
- Genuine CENTURY renewal parts are available at CEN-TURY Service Stations, CEN-TURY Parts Distributors and at the factory in St. Louis.

You will find that these rugged, dependable motors meet the starting, accelerating and running characteristics of such equipment as refrigeration compressors, air compressors, stokers, reciprocating pumps, and other hard-to-start loads.

For more than 47 years, Century Type RS motors have given satisfactory service throughout the world. They are available in sizes from ½ to 20 horsepower, in drip proof and splash proof frames.

In addition, Century builds electric motors in a wide range of types and kinds—in sizes from 1/6 to 400 horse-power for operation on single and polyphase and direct current. Specify Century motors for all your electric power requirements.

ALTERNATING CURRENT MOTORS POLYPHASE

Squirrel Cage Induction — 1/6 to 400 H.P. Wound Rotor Motors—1 to 400 H.P. Synchronous Motors—20 to 250 H.P.

SINGLE PHASE

Split Phase Induction—1/6, 1/4, 1/3 H.P. Capacitor—1/6 to 20 H.P. Repulsion Start, Brush Lifting, Induction— 1/2 to 20 H.P.

DIRECT CURRENT MOTORS

1/6 to 300 H.P.

GENERATORS

AC, .63 to 250 KVA DC, .75 to 200 KW

GEAR MOTORS

1/8 to 1-1/2 H.P.

MOTOR GENERATOR SETS

AC to DC, AC to AC DC to DC, DC to AC

Open Protected, Splash Proof, Totally Enclosed Fan Cooled, Explosion Proof.

Ball Bearing motors are factory lubricated for several years' normal service. Bearing housing construction permits easy re-lubrication when unusual service demands it.



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Circle No. 56 on Reader Service Card for more information

Oil Separation and Freon-22

By EDWARD KELLIE

President.

Aminco Refrigeration Products Co.

THE actual separation of oil from gaseous Freon-22 presents no difficulties; in fact, the same baffling is used as is used in Freon-12 oil separators. Freon-22 gas carrying oil enters the oil separator and the baffling removes the heavier particles of oil.

The finely divided oil particles and the lighter fractions are removed as the velocity of the gas is reduced, and the oil particles collide with each other and impinge on the shell walls, thus collecting in a moist oil film which has sufficient weight to flow down to the bottom of the oil separator, where it collects into sufficient volume to open the oil return float and be returned to the crankcase. Thus far, we see that the separation of oil is pretty much the same regardless of the refrigerant in its gaseous stage.

Intermittent Oil Return

However, after the oil reaches the sump in the bottom of the separator, other factors must be considered. First, it is desirable to have the oil return to crankcase at intermittent intervals. These intervals should be so spaced as to keep the oil level in the crankcase at a satisfactory level and yet to be spaced far enough apart that the crankcase pressure is not raised to affect the back pressure. It must be borne in mind that the amount of oil going back at any one time and the rate with which it is returned will govern the extent to which the back pressure will be affected.

Having established these two factors, we must have a float mechanism which will remain closed until the desired amount of oil has collected in the separator and then open sufficiently to rapidly return that amount of oil to the crankcase and then close tightly. We find that the high side pressure acting against the needle when it is closed against the seat tends to hold the needle closed. We then select a float with sufficient buoyancy to break the needle away from the seat as the oil level reaches about half way up the float.

Float Buoyaney Important

As this occurs and the needle breaks away, the high side pressure is acting in all directions on the needle and is no longer forcing it against the seat. At this point, the float rises rapidly out of the oil and opens the needle valve wide permitting the oil to be forced out through the orifice very rapidly. By the time this has occurred, the float quickly falls back and closes off the needle against the seat and the high side pressure is again forcing the needle against the seat ready for another cycle of collection of oil.

From these facts, it becomes apparent that the high side pressure is also a determining factor in the buoyancy of the float.

In designing a float for an oil separator to be used on SOs and methyl chloride, we were dealing with high side pressures of around 50 psi and 90 psi respectively and found that a happy medium could be arrived at and one float mechanism was suitable for both. Later when Freon-12 came into use it became necessary to increase the buoyancy of the float in the oil return mechanism since we were experiencing high side pressure of from 120 psi to 140 psi with the new Freon-12. It was found that this was still okay for methyl chloride and while increasing the frequency of the intervals of oil return on SO2 jobs the back pressures were not materially affected.

Oil Separator Problems

When Freon-22 came into being it was immediately apparent that we were facing high side pressures which were very materially higher than those of any of the other refrigerants and that an oil separator that was designed for Freon-12 would just load up with oil until the float was completely submerged causing a longer transmission period for the returning of the oil to the crankcase and thereby affecting the back pressures.

Since F-22 was most adapted for use on lower temperature equipment, raising the back pressure meant loss of capacity to pull down to these lower temperatures. Further, it was found that under high ambient temperatures much higher high side pressures were encountered and under these conditions the float mechanism could not break the needle away from the seat because the additional pressure created a load against the needle which was greater than the lift created by the buoyancy of the F-12 float.

Special Design Required

These observations were all borne out in experimental work carried out in our own laboratory as soon as Freon-22 was available. We then worked out the required buoyancy for a float mechanism and this, taking into account the probability of occasional accidental high pressures, proved to be identical with a float mechanism which we had designed seven or eight years earlier for Phillips Petroleum Corp. for the transfer of propane, etc.

One of these separators was then installed in an experimental F-22 job and was found to be exactly what was required for F-22. It gave us the most desirable frequency of oil return intervals, the right amount of oil going back to the crankcase each time, and thus did not affect the back pressures even on jobs operating at 100F below zero. We were thus able to supply the right oil separator for F-22 as soon as it came into use and since World War II was in progress at the time and demands for low temperature equipment were most urgent, it was fortunate that the seven or eight years of experience with the same

separator in the propane transfer field had given us a trial period which removed any doubt as to the ability of the separator to stand up under the conditions required by Freon-22.

In the hope of avoiding the problems of atocking two kinds of separators, one for SO₃, methyl chloride, and Freon-12, and one for Freon-22, the next step was to check the operation of an F-22 oil separator on an F-12 job. The results, however, bore out earlier predictions.

Compromise Is Dangerous

It was found that under all normal conditions on F-12 operation the additional buoyancy on the float in the F-22 separator caused the float to hang open some of the time or permitted such rapid frequency of oil return that back pressures on F-12 jobs were affected. Of course, it is possible to make a compromise and have a little less buoyancy on the F-22 float and then have satisfactory operation on F-12 too.

satisfactory operation on F-12 too. This, however, is rather risky business because there are occasions when extremely high head pressures occur with F-22 and an oil separator must work all of the time under all conditions. Any compromise, therefore, is not to be considered because when these high pressures occur the float must still have enough buoyancy to open the needle valve otherwise the oil will not be returned and will fill up the separator and then go over to the low side and at the same time will dangerously lower the oil level in the crankcase.

It, therefore, becomes obvious that a Freon-12 oil separator is not satisfactory for Freon-22 and that a Freon-22 oil separator is apt to affect the back pressures on Freon-12 jobs. It is best to be safe—use the oil separator that is correctly designed for the refrigerant—an F-12 separator for F-12 and an F-22 separator for F-22.

MARLEY OFFICES MOVED

Marley Co., Inc., has moved the location of its general offices to 222 West Gregory Blvd., Kansas City, Mo. The new location will house the company's general sales, engineering, executive, accounting and production offices. Space previously occupied by these offices at the company's Fairfax Road location is being used for increased manufacturing facilities.

OPENS OWN AGENCY

William C. Schaller formerly an account executive and catalog division manager of Edward Owen & Co. Avon Conn., has opened his own agency, William C. Schaller Co., in the Odlum Bldg. 945 Asylum Ave., Hartford, Conn.

BUY FROM YOUR REFRIGERATION WHOLESALER

Contractors Can Adjust Prices Under New OPS Regulation

A NEW ceiling price regulation 93) which permits the building construction industry, including air conditioning and refrigeration contractors, to adjust prices to reflect increased material and labor costs, has been issued by the Office of Price Stabilization.

Effective Nov. 20, CPR 93 covers transactions in which sellers, including subcontractors as well as prime contractors, furnish labor service or any combination of labor, materials, equipment and service under contract for building, highway heavy and railroad construction and a broad

range of miscellaneous construction.

Building construction includes but is not limited to the creation and construction of building structures intended for shelter, protection, comfort, or convenience, and of production and processing facilities, according to the regulation.

"The term includes but is not limited to . . . the installation of plumbing, heating, air conditioning, and like equipment, and all modifications, alterations, additions and repairs," the regulation reads.

Also covered by the regulation are transactions which involve shop fabrication by the installer of materials, the sale of installation or erection service by a manufacturer who installs or erects a commodity manufactured by him and charges separately for the installation or erection; and any transaction involving both the manufacture and installation or erection of a commodity with a single charge for the entire service.

However, the order does not cover the installation or erection of a commodity covered by CPR 30 "if you are a manufacturer of that commodity or the parent, an affiliate or a subsidiary of the manufacturer, and you both sell that commodity and furnish the services required to install or erect it."

Neither does the regulation covered the separate installed sale of appliances such as domestic refrigerators, water coolers, portable air conditioners, etc., for which the cost of the required installation service is only incidental, nor repair and maintenance service on these types of equipment. CONTRACTORS

What Regulation Does

Previously, construction and related services and sales of installed materials were covered by the General Ceiling Price Regulation until issuance of CPR 34. Pricing under these regulations, OPS explained, proved difficult and unsuited to the construction industry.

In general, the new regulation (CPR 93) establishes ceiling prices on the basis of current costs for labor, materials, and equipment, plus nine-tenths of the highest markup for profit which the seller had in effect for a similar job during the base period July 1, 1949 to June 24, 1950.

In reducing the base period percentage markup for profit by 10%, as provided in the order, OPS officials pointed out that costs of construction labor and building materials have risen by 10% and 12%, respectively, since the outbreak of hostilities in Korea.

"It is estimated, therefore," OPS said, "that nine tenths of the profit, when applied to increased costs, will result in approximately the same dollars and cents profit as the seller realized during the base period on a similar job."

The base period percentage markup for overhead need not be reduced if the seller can make a separation of his total base period percentage

HERE'S HOW TO "PREVIEW" ROOM UNITS FOR CUSTOMERS



ONE ANSWER to those hesitant air conditioning prospects who just can't seem to visualize what a window cooler will look like in their home or office is this showroom demonstration unit developed by Modernized Equipment Co., Cincinnati. This unit embodies a standard double-hung sash, complete with glass penes and Venetian blinds, into which the window cooler is installed. The whole essembly is mounted on a castered base so that it can be readily moved to any point in the showroom and plugged into the nearest outlet to place the window cooler in actual operation. C. S. White, head of Modernized Equipment, watches with interest as one of his selesmen makes a practice sales pitch using the new demonstrator.

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markup into an applicable percentage representing profit and an applicable percentage representing his recovery of overhead expense.

Explaining the objective of the order, OPS said that each type of construction service "may involve the activities of contractors in specialized branches of the construction industry such as plumbing, heating, air conditioning, electrical work, sheet metal and carpentry.

"Accordingly, the regulation is designed to afford methods of general pricing applicable to all segments of the industry in order that sellers may price their services readily and uniformly and in accordance with traditional methods used by them in estimating and furnishing services, materials and equipment."

New or supplementary regulations tailored to the needs of the specialized branches of the industry will be issued "if the need proves substantial or reasonable," OPS said.

Types of Service Covered

CPR 93 applies to sales of construction services under lump sum, cost-plus fixed fee, and cost-plus with guaranteed limit contracts; to sales on a time and materials basis or an hourly rate basis; and to sales of items or materials and equipment together with the construction services required to install or erect them.

An exception to the general pricing method provided in the regulation is made in the case of sales of labor services on the basis of an hourly rate charged to the purchaser. The ceiling charge for labor services cannot exceed the highest base period hourly charge plus the dollars-and-cents increase in the cost of that labor incurred by the seller subsequent to the base period.

A further exception is made in the case of sales of construction services under cost-plus fixed dollar fee contracts. The ceiling fixed dollar fee which may be charged is the highest fee charged during the base period for a similar job. Similar exceptions apply to sales on a time and materials basis and to installed sales.

The regulation contains a savings provision allowing a seller to continue to use a ceiling price which he has properly established under CPR 34 if that ceiling price is higher than the ceiling price allowed under the new regulation for the same service. If the seller elects to use

a CPR 34 percentage higher markup, however, he may not then apply that higher markup to current costs. It must be applied to costs prevailing during the CPR 34 base period, Dec. 19, 1950, through Jan. 25, 1951, unless otherwise provided in CPR 34.

The regulation requires the keeping of such records as will allow OPS to determine whether or not ceiling prices have been figured correctly; records showing the cost of labor, materials, and other costs; and records showing charges made or prices offered in connection with the sale of construction services during the base period and subsequent to the effective date of the order.

Basic Reports Required

Basic reports are required from contractors furnishing services and materials on an hourly rate, time and materials basis, or installed sales basis. Supplemental reports are required where these costs are increased after the basic report is submitted.

Contractors are not required to redetermine the ceiling prices which they established under CPR 34 for a job which is in progress on the date CPR 93 was issued (Nov. 14), or on a job which was commenced before the effective date of the order Nov. 20) pursuant to a written contract entered into, or a written bid submitted before the date of issuance of the regulation.

A Trade Guide outlining the new pricing regulation, plus the forms to be used in submitting reports and a suggested form for record keeping, are available from any OPS regional or district office.

TWO NEW MEMBERSHIPS ESTABLISHED BY RACCA

Members of the Refrigeration and Air Conditioning Contractors Association at their meeting in Chicago during the All-Industry Show, adopted a resolution putting RACCA on record as favoring a limitation of guarantees and warranties on commercial refrigeration and air conditioning equipment.

RACCA also established a new category of sustaining membership for those with interests in the refrigeration and air conditioning field, but not engaged in the contracting business.

A new membership classification to cover contractors doing less than

\$50,000 annual business also was established. This is in recognition of the fact that such contractors in smaller market areas are a vital factor in the business.

Action Expected on N. Y. Licensing Bills

A CTION of some sort is expected shortly on a number of bills now pending before the City Council of the City of New York covering regulations concerning the licensing of firms selling and servicing refrigeration equipment, the inspection of refrigerators and refrigeration systems, and the licensing of operating engineers for refrigeration systems of a specified size and larger.

Measures now pending before the Council are Bill No. 524, calling for the licensing of master refrigeration contractors engaged in installing, repairing, servicing, and maintaining refrigeration systems; Bill No. 487, which would require the licensing of persons or corporations which engage in the business of servicing or repairing refrigeration equipment in multiple and private dwellings; and Bill No. 4, which would require refrigeration or air conditioning systems in excess of 10 tons capacity to be under the personal supervision of a licensed operator.

Bill No. 524, proposing licensing of master refrigeration contractors, was reviewed in the Contractors' Section of the August, 1951, issue of Commercial Refrigeration and Air Conditioning.

This bill has the backing of the Refrigeration and Air Conditioning Guild of New York City, whose members also are members of Refrigeration and Air Conditioning Contractors Association. Opposition to the master contractors licensing idea is led by the Commerce and Industry Association of New York, Inc., which claims to have on its side the Air Conditioning & Refrigerating Machinery Association, Inc.; the Building Trades Employers' Association; Enterprise Association of Steam Fitters, Local No. 638; Heating, Piping and Air Conditioning Contractors N.Y.C. Association; Association of Contracting Plumbers, Service Managers Association, Inc., and the Empire State Association of RSES.

for the life of the system...

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eye on the
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Let these outstanding Sight Glass features make your job easier —

- Tightly assembled and tested at the factory
- Extended tubes which allow silver soldering without disassembly
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- Specially compounded rubber gaskets
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All these time, labor and worry-saving features are standard equipment on all Superior Sight Glasses. You should be using them!

Remember to ask for them by name at your local wholesalers — he has them in supply.



Pittsburgh 26, Pa,

Circle No. 58 on Reader Service Card for more information



Text of RACCA Complaint To Federal Trade Commission

To the Federal Trade Commission, ureau of Industry Cooperation, Division of Trade Practice Conference

The Refrigeration & Air Conditioning Contractor Association, Inc., is submitting this application for the promulgation of trade practice rules in the interest of the industry and the purchasing public. Its intent is to provide for the prevention of unfair methods of competition or practice or other illegal trade practices. Its purpose also is to foster and promote fair competitive foster and promote fair competitive conditions and establish standard ethibusiness practices in harmony with public policy.

The Refrigeration and Air Conditioning Industry exists on many levels. At the top, there is the manufacturer and the next is the wholesaler, then the jobber and then the contractor. The manufacturer, in the majority of cases, deals through the middleman and sometimes through the contractor or dealer di-rectly. In some instances, the manufac-turer is also the contractor, installer and the maintenance company.

Function of the Contractor

The wholesaler or jobber does not as a rule, do any contracting. They merely sell to contractors and/or dealers. The contractor buys the equipment from said manufacturer or the wholesaler or jobber, sells to the consumer and in-stalls, services and maintains refrigeration and air-conditioning equipment for the consumer. Roughly, refrigera-tion and air-conditioning may be divided into three categories:

In domestic refrigerationchines up to and including 1/4 hp ma-

In commercial refrigeration-From

In industrial refrigeration-All over

The products involved are household refrigerators, including cabinets, de-frosting trays, wire baskets, etc. Commercial refrigeration equipment con-sists of condensing units, evaporators, ice-cream and soda fountains, dairy equipment, refrigerator locker storage equipment, liquid cooling equipment, air-conditioning, condensing units, evaporated condensers, water towers, heat transfer equipment, beer cooling equipment, ventilating and air-cooling equipment, all kinds of associated mechanical and automatic controls, testing and recording instruments, electric motors, copper and steel metal tubing, sheets and stamping, installation and service tools, equipment and supplies, refrigerant, lubricating oils and chemicals.

It is estimated that the total annual value of retail sales is between six and seven hundred million dollars. This is the figure for retail sales of all airconditioning and refrigeration prod-ucts. There are approximately 10,000 contractors in the country and approxi-mately 25,000 service mechanics. There are about 100 to 150 recognized wholesaler-jobbers and there may 200 manufacturers. Many of the manufacturers are not strictly manufacturers of refrigeration and air-conditioning equipment. All of the quoted figures are approximate.

Manufacturers are represented in the industry by the Air-Conditioning and Refrigerating Machinery Association, the Refrigeration Equipment Manufacturers Association; the wholesaler/job-bers are represented by the Refrigeration Equipment Wholesalers Associa-tion; the contractors are represented by Refrigeration & Air Conditioning Con-tractors Association, Inc.; the refrig-eration engineers are represented by the American Society of Refrigeration Engineers; the commercial dealers are represented by the National Commercial Refrigerator Sales Association. Some of the acts, practices and meth

ods of unfair competition are as fol-

There are large corporations in the refrigeration industry who use refrigeration merely as a tool for their main business. For example, ice-cream manufacturers will buy refrigeration equip-ment, will service and install such equipment below cost or for no cost, merely to sell their ice-cream and dairy products. They have a separate refrig-eration company set up individually and apart from the parent company, and apart from the parent company, but acting as full refrigeration con-

Below-Cost Sales Cited

The practice of this seller is to sell below cost with the intent and with the effect of injurying a competitor and may substantially lessen competition and tend to create a monopoly or un-reasonable restraint of trade. The quantity of frozen food merchandising cabi-nets sold in large cities is practically nil because of the tie-in sales by frozen food sellers.

Strange as it may seem, ice-cream manufacturers have stated privately that they are desirous of discontinuing such practices, but that since all other ice-cream manufacturers join in this activity, they are forced to continue these objectionable practices. They admit that this business is a loss to them, is used as loss-leaders.

The same is true for soft-drink manufacturers who give away (or sell below cost) beverage coolers. In the many regulated states, the opposite is true for the sale of beer. State Alcohol Boards have declared it to be an unfair trade practice for a brewer to install, service or maintain beer cooling equipment at or below cost. Thus can be seen that the practice is considered an evil in one part of the industry.

Specific Cases Given

As an example of such unfair conthe following is a very frequent procedure:

confectionary store buying ice-m from a certain manufacturer, cream not only receives his freezer free of charge, but the same refrigeration equipment is also attached to his bain-marle, his salad tray, his display case and his reach-in refrigeration. Obviously, the latter items are not part of the sale of ice-cream. In many instances where bakeries sell ice-cream, ice-cream companies also connect up the whip-cream display case and their food freezer as well as their icecream cabinets.

what is occurring in this business:
About 6 months ago,
Delicatessen Store, made advance reservations with a refrigeration contractor to rearrange their refrigeration equipment. The work consisted of moving meat and delicatessen cases and reconnecting them in a new location. Two days before the work was to have been done, the owner of the delicatessen called the refrigeration contractor and cancelled the order, stating that a cer-tain dairy was doing the work for him

without charge. The contractor called the dairy to explain the situation and the dairy thereupon removed itself from the picture. However, the dairy supplied the customer with a soda fountain free of charge.

7 months of poor operation, Grocery decided or

installed on a 6 ft. Double-duty McCall display case by the owner of Dairy Ice Cream Co. The grocer had been charged the wholesale price of \$12.50 for a White-Rodgers 951 Room Thermostat, completely installed by the Dairy Ice Cream Co., who claimed that the pres-sure control was no good. The refrig-eration contractor also discovered that the Thermal expansion valve was worthless, and that there was a leak on the evaporator coils. Also, the job was found to be short of refrigerant and the new thermostat did not correct the trouble.

Faulty Installation Claimed

contractor does not believe the Dairy bothered to collect the State's Sales and Use tax on this item. In addition, the Dairy's serviceman had wired this job Dairy's serviceman had wired this job from the condensing unit in the base-ment with an 18-2 rubber-covered wire which ran through the floor of the store without protection above the floor —which is in direct violation of the Electrical Code of the National Board of Fire Underwriters, and also in viola-tion of the Electrical Code of the City which is patterned after the National Code. The Dairy also did this work without first obtaining a license or permit. Also, when the refrigeration contractor was given to the owner of the Diner for

(cases and coolers) to an associated grocers wholesale outlet who in turn supply their members with cases and coolers at wholesale. (The names and addresses and other pertinent details will be submitted upon request). Wherefore, petitioner requests that the Commission establish Trade Practice Rules in the interest of the industry and the purchasing public.

HEADS DEALERSHIP

Herbert H. Randall has been elected president of Ammona, Inc., 249 Meeting St., Charleston, S. C., air conditioning and commercial refrigeration dealer. He also will be active manager of the busines. Randall formerly was South Carolina manager for Frigidaire Div. of General Motors Where Quality Counts Most-

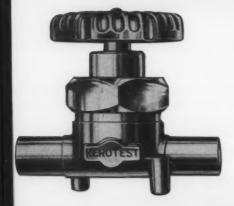
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CAPELLA OIL

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(WAXFREE)

Distributors, dealers and service engineers —all troop to the till with greater profits, bigger business, thanks to the new Texaco Capella Oil (Waxfree). This highly-refined oil assures better compressor performance, even at temperatures as low as minus 100°F.

Actual tests show Texaco Capella Oil (Waxfree) is way ahead of other oils because it has lower haze and floc temperatures, greater freedom from wax precipitation... sets a new high in purity, stability and resistance to oxidation. It has extremely low pour tests, is moisture-free and will not react with refrigerants.

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(Waxfree) to assure more efficient operation from every compressor—regardless of age or size. They are available in refinery-sealed 55-gallon drums, and 5-gallon, 1-gallon and 1-quart containers.

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FOR ALL REFRIGERATING AND AIR CONDITIONING EQUIPMENT



TEXACO CAPELLA OIL

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THE PRACTICAL REFRIGERATION APPLICATIONS MANUAL

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. The most interesting ones will be published in these columns. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

PROBLEM

HAVE been called to figure refrigeration equipment for a new dairy plant. These people have given me the following information:

"Walk-in cooler 10 x 12 x 9 feet high, flat roof, exposed to sun all day, 90 degrees outside temperature, inside temperature of cooler 36 degrees, no windows. I reommended 4-inch cork insulation all around. 1500 quarts of milk in glass bottles and wooden crates stored. Holding period of approximately 18 hours.

"Pasteurized milk. No brine tank system. Instead, direct expansion equipment, 1500 quarts per day. I intend to use a latent heat water storage unit for cooling the top section of the aerator. What model will be sufficient for that capacity on the sweet water pull-down for upper section of the aerator?

"Give me the Btu for water cooled condensing on Freon and aerator. Also, for water storage and walk-in cooler condensing units. You notice that I intend to use a separate condensing unit for each equipment, and I should like to have recommended liquid and suction line sizes for condensing units on both the direct system and the aerator.

"I want to compare your recommendations with the figures I have made on this job."

SOLUTION

I F THE walk-in cooler with roof exposed to the sun all day does not have a ventilated air space between the roof and ceiling we would recommend the use of 6-inch cork insulation in the ceiling, also on the

walls exposed to the direct sun's rays.

1500 quarts of milk would call for approximately 125 crates, 12 quarts to a case. 1500 quarts or 375 gallons represents 3225 pounds of milk. We would estimate the refrigeration load in the walk-in cooler at approximately 19,000 Btu per hour.

We would recommend the use of two forced draft coils, each with a capacity of 680 Btu per 1 degree t.d., and a 1½-hp water-cooled Freon condensing unit with a capacity of approximately 19,000 Btu at 22-degree suction gas temperature. This condensing unit would call for a %-inch liquid line and two %-inch suction lines, one from each coil.

We note that you plan to use a direct expansion aerator to cool the milk from the pasteurizer to the bottles. The temperature out of the pasteurizer is 145 F and the bottle temperature is 40 F, a temperature reduction of 105 degrees. An aerator usually cools 1000 pounds of milk per hour. Therefore, cooling 3225 pounds of milk would require a 3¼-hour operation.

The refrigeration load we would estimate at approximately 94,000 Btu per hour. The condensing unit required for the initial cooling from 145 to 60 F would be a 7½-hp model having a capacity of 75,200 Btu, with a %-inch liquid line and a 1%-inch suction line. For the final cooling from 60 to 40 F, a 1½ or 2-hp condensing unit with a capacity of 18,800 Btu would be needed.

BLOOD BANK TO USE BIG COOLING PLANT

A large air conditioning and refrigeration installation for blood research and processing and for the comfort of blood donors will be made by the Blood Bank of Dade County, Inc., in Miami, Fla., one of the country's early community blood centers. The Dade County bank will more than double the size of its present building to meet current demands for blood and plasma and to increase its already highly productive research activities. Extensive work has been done here in developing knowledge of the Rh factor in blood and in producing blood grouping and Rh typing serums of high potency.

Refrigeration installation for the new addition will provide a low temperature room at O F for quick freezing and frozen storage of certain materials in connection with the research program. An incubator room also used for research will be held at a constant 90 F, and a third room will handle refrigerated storage at 35 F.

The building will be completely air conditioned for the benefit of blood donors and to help maintain high staff efficiency in all seasons of the year. Constant temperatures and clean, filtered air are also important in experimental work with animals, where temperature charts may help determine physiological reactions to tests.

Air conditioning and refrigeration for the expanded building will be handled by Conditioned Air Corp., Miami Carrier distributor.

CAN "ENGINEER" WINDOWS FOR AIR CONDITIONING

Large insulating windows may now be engineered to air-conditioning needs with the new low-expansion type, heat-absorbing plate glass available for fabrication into Thermopane units, reports G. P. MacNichol, Jr., vice president in charge of sales of Libbey-Owens-Ford Glass Co.

The quarter-inch heat-absorbing plate glass excludes 61% of total sun radiation but transmits 71% of average daylight, when used in Thermopane with one light of conventional quarter-inch polished plate glass.

In some special cases a combination unit of two lights of the quarter-inch heat-absorbing glass may be used to exclude 78% of solar radiation and transmit 62% of daylight.

Air-conditioning units usually are built with a 25% margin of extra load, as figured by engineers, to cover unusual conditions. With the new type of heat-absorbing glass in windows it is possible to reduce the mechanical equipment and save initial and operating costs on air-conditioning equipment, MacNichol said.

Kulene-131 Is New Low-Temperature Refrigerant

Editors' Note: The following information on the newly developed refrigerant, "Kulene-131", has been supplied by Eston Chemicals, Inc., of Los Angeles, exclusive distributor of the chemical in the refrigeration and air conditioning fields.

Table 1—Temperature, Pressure, Volume and Density Relationships for Kulene-131

	Pres	sure	Volt	une	Density		
Temp.	Absolute Lb/In ²	Gage Lb/In ²	Liquid Ft ³ /Lb	Vapor Ft ³ /Lb	Liquid Lb/Ft ³	Vapor Lb/Ft ³	
-40	32.41	17.71	.008382	0.8811	119.3	1.135	
-30	39.94	25.24	.008482	0.7246	117.9	1.380	
-20	48.85	34.15	.008621	0.5977	116.0	1.673	
-10	59.29	44.59	.008734	0.4988	114.5	2.005	
0	71.14	56.44	.008857	0.4202	112.9	2.380	
+5	77.93	63.23	.008928	0.3854	112.0	2.595	
10	84.84	70.14	.008993	0.3546	111.2	2.820	
20	100.3	85.6	.009132	0.3003	109.5	3.330	
30	118.3	103.3	.009276	0.2556	107.8	3.913	
40	137.3	123.1	.009442	0.2169	105.9	4.610	
50	160.4	145.7	.0.09625	0.1856	103.9	5.388	
60	184.9	170.2	.009823	0.1587	101.8	6.303	
70	212.4	197.7	.01005	0.1366	99.5	7.320	
80	242.1	227.4	.0103	0.1173	96.9	8.523	
86	261.8	247.1	.0105	0.1068	95.2	9.365	
90	275.0	260.3	.0106	0.1000	94.0	10.00	
100	311.7	297.0	.0110	0.0842	90.8	11.88	
110	352	337	.0115	0.0699	86.8	14.31	
120	396	381	.0122	0.0562	82.0	17.80	
130	444	429	.0132	0.0423	75.5	23.65	
140	496	481	.0150	0.0302	66.5	33.15	
150	552	527	.0192	0.0221	52.0	45.30	

Table 2—Temperature, Heat Content and Entropy Relationships for Kulene-131

		ntent from		Entropy from -40F				
Temp.	Liquid Btu/Lb.	Latent Btu/Lb.	Vapor Btu/Lb.	Liquid Btu/Lb.	Latent Btu/Lb.	Vapor Btu/Lb.		
-73			53.8	-	-			
-40	0	50.25	50.25	0	0.1196	0.1196		
_30	1.72	49.14	50.86	0.0041	0.1143	0.1184		
-20	3.47	47.98	51.45	0.0081	0.1090	0.1171		
-10	5.24	46.78	52.02	0.0121	0.1040	0.1161		
0	7.04	45.52	52.56	0.0160	0.0990	0.1150		
+5	7.95	44.88	52.83	0.0180	0.0965	0.1145		
10	8.86	44.21	53.07	0.0199	0.0941	0.1140		
20	10.71	42.84	53.55	0.0238	0.0893	0.1131		
30	12.58	41.39	53.97	0.0277	0.0845	0.1122		
40	14.48	39.87	54.35	0.0315	0.0797	0.1112		
50	16.40	38.26	54.66	0.0353	0.0750	0.1103		
60	18.35	36.55	54.90	0.0391	0.0703	0.1094		
70	20.32	34.71	55.03	0.0429	0.0655	0.1084		
80	22.32	32.73	55.05	0.0466	0.0606	0.1072		
86	23.52	31.47	54.99	0.0489	0.0576	0.1065		
90	23.34	30.58	54.92	0.0503	0.0556	0.1059		
100	26.39	28.21	54.60	0.0540	0.0540	0.1044		
110	28.46	25.56	54.02	0.0578	0.0448	0.1076		
120	30.56	22.51	53.09	0.0614	0.0388	0.1002		
130	32.68	18.86	51.54	0.0649	0.0320	0.0969		
140	34.83	14.11	48.94	0.0696	0.0235	0.0931		
150	37.00	5.88	42.88	0.0721	0.0096	0.0817		

K ULENE-131, the trade name for bromotrifluoromethane (CF₃Br), is a non-toxic, non-explosive, non-inflammable gas which is suitable for use as a low temperature refrigerant. The compound bromotrifluoromethane is covered by U. S. patent number 2,531,372, and its use in refrigeration is covered by U. S. patent number 2,531,373.

By terms of an agreement reached prior to the issuance of these patents, Eston Chemicals, Inc., is the sole and exclusive distributor in the refrigeration and air conditioning fields.

The refrigerant has a low compression ratio and is said to be especially suited for centrifugal refrigeration. Its low boiling point at atmospheric pressure also makes it of interest in low temperature applications.

TOXICITY

Kulene-131 is a colorless liquid, and a preliminary series of toxicity tests indicated that it is likely to be classified by the Underwriters' Laboratories of the National Board of Fire Underwriters in their group six.

OPERATING CHARACTERISTICS

In addition to being non-toxic, Kulene-131 is also termed non-inflammable and non-corrosive. It is reported to be stable under a variety of exposures to many agents such as heat, solvents, alkalies, acids, etc. Its effect on the various materials of construction normally used in the construction of refrigerating machinery and equipment is said to be comparable to that of dichlorodifluoromethane.

PHYSICAL PROPERTIES

Based on preliminary tests, the physical properties of Kulene-131 are given as follows:

Odor: ethereal; flammable limits: nonflammable; toxicity: nontoxic; suitable metals: all standard.

Table 3—Comparison of Refrigerant Properties of Kulene-131 to Other Common Refrigerants

Basis: One Ton of Refrigeration

5F	Evaporation	and	86F	Condensation
----	-------------	-----	-----	--------------

	Evap. Press. Psig	Condensing Press. Psig	Compression Ratio	Net Refrig. Effect Btu/Lb.	Refrig. Circu- lated Lb./Min.	Specific Vol. Vapor Cu. Ft./ Lb.	Com- pressor Displace- ment Cu. Ft./ Min.	Hp/Ton	Coefficient of Per-
Methyl Chloride	6.5	80	4.48	150.2	1.33	4.47	5.95	1.020	4.62
Dichlorodifluoro- methane	11.8	93.2	4.08	51.1	3.91	1.48	5.81	1.03	4.53
Ammonia	19.6	154.5	4.94	474.6	0.421	8.15	3.46	0.981	4.75
Monochlorodifluoro- methane	28.3	159.8	4.06	69.3	2.89	1.25	3.60	1.016	4.65
Kulene-131	62.9	246.3	3.36	29.3	4.45	0.39	2.65	1.160	4.07

-40F Evaporation and 68F Condensation									
Methyl Chloride	15.9"*	56.3	10.3	150.9	1.33	12.72	16.85		
Dichlorodifluoro- methane	11.0"	67.5	8.3	49.8	4.02	3.91	15.73	1.61	2.93
Ammonia	8.7"	109.6	11.9	479.3	0.417	24.86	10.38	1.57	3.04
Monochlorodifluoro- methane	0.61	118.3	8.7	70.1	2.84	3.28	9.32	1.55	3.00
Kulene-131	17.8	193.3	6.4	30.2	6.64	0.88	5.84	1.71	2.76

^{*} Inches of Mercury Vacuum

Boiling point at atmospheric pressure: -73.6 F.

Density of vapor: at 5 F, 2.595 bs./cu. ft.; at 86 F, 9.365 lbs./cu. ft. Density of liquid: at 0 F, 112.9 bs./cu. ft.; at 80 F, 96.9 lbs./cu. ft. Critical temperature: 153.5 F; crit-

ical pressure: 587 p. s. i. a.

Heat content of liquid at 80 F;
22.32 Btu/lb.

Heat content of vapor at -40 F: 50.25 Btu/lb.

Latent heat of vaporization at -73 5: 53.8 Btu/lb.

Freezing point: -226 F. C_P/C_a at 77 F: 1.116.

SOLUBILITY IN OIL

Using the static method, it has been letermined that Kulene-131 is slightly soluble in Capella oil (Type D) to the extent of 0.016 grams of Kulene-131 per ml of oil at 25 C and 760 mm pressure. Data on other types of oils under varying conditions are not as yet available.

According to Eston Chemicals, the following appear to be the principal

advantages of Kulene-131 as a refrigerant:

1. Lower compressor displacement than all other commonly used refrig-

2. Lower compression ratio than other commonly used refrigerants.

 Operating pressures sufficiently high to permit efficient operation of low-temperature equipment.

4. Special suitability for small size low-temperature equipment.

The company reports that shipment of Kulene-131 has been approved by the Bureau of Explosives in ICC 3A 1800 cylinders with appropriate safety devices.

Eston also reports that the refrigerant "has already been used in equipment designed for standard refrigerants with satisfactory results. On a test set-up Kulene-131 achieved the desired reduction of temperature in 25% less time than required with a commonly used low pressure refrigerant."

Additional data on the new refrigerant is given in the accompanying

NEW FREEZER LINE

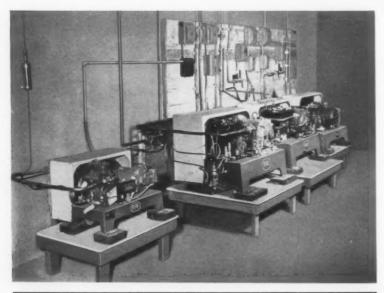


FOUR MODELS of home freezers, ranging in capacity from 10 to 24 cu. ft., are in the new line announced by International Products Corp., Les Angeles. Shown here is the 18 cu. ft. model. The company, previously identified only with the commercial refrigeration field, has formed a home freezer division, with Ab Waxman as general sales manager. According to William Lapin, president, the new line, carrying the name "Upright Freeze," will be available with white baked enamel, stainless steel and satin finish aluminum exteriors. The units are powered by Servel hermetically sealed compressors and have 5 inches of fiber glass insulation.

17 Is "Par" for This Course



SEVENTEEN "PAR" CONDENSING UNITS in sixes ranging from 1/2 to 3 hp have been installed in two new City Wide supermarkets located in the Bronx, N. Y., and in Astoria, L. I. Installed by Fidelco, Inc., New York City, the Bronx job consists of 10 Par combination refrigeration units in sixes of 1/2, 1/4, 1, 1/4, 2 and 3 hp, and the Astoria job uses seven units in 1/2, 1, 1/2 and 3 hp sixes. Fixtures and cases shown in one of the photos are by Silver Refrigeration Mfg. Co., Brooklyn.



AIR CONDITIONING AIDS RECOVERY, DOCTOR SAYS

Experience has shown that residence of 48 hours in an air conditioned recovery ward avoids post-operative complications suffered by patients whose heat regulating mechanism is altered by anesthesia, Dr. Robert W. Keeton, head of the Department of Medicine, University of Illinois, has declared.

"In the summer time, when the hu-

midity is high, post-operative patients commonly develop heat retention which, if unrelieved, leads to heat strokes," said Dr. Keeton. "This causes adrenal stimulation and if long continued, presumably adrenal exhaustion.

"In a study of convalescence it was noted that post-operative patients in comfortable environment made unusually good recoveries. Patients producing extra heat as a result of hyperthyroidisms may slip into an hyperthyroid crisis. The latter is prevented or ameliorated by exposure to cool dry air.

"In the waves of hot humid weather patients with heart disease are quite prone to die. The primary difficulty seems to be inability to transport heat to the surface due to circulatory impairment. Heat retention and death follow. This can be prevented by exposure to comfortable or cool dry environments.

"In patients with coronary sclerosis, dehydration as the result of excessive sweating may precipitate a blood clot (coronary thrombosis) at the site of an arteriosclerotic plaque.

"More recently the reduction to 92 F. of the rectal temperature of children with congenital heart disease, who have a limited capacity for oxygenating their blood, has made it possible to operate some seemingly inoperable cases.

"Air-conditioned environments are necessary for research studies which include work experiments throughout the year, alterations in circulation, and in the partition and distribution of electrolytes."

MODEL PLANT USES NEW SYSTEM TO MAKE ICE

Water poured into refrigeration tanks froze into white and solid ice blocks at a temperature of about 20° in less than two hours recently at the "Rapid Ice" plant of Eugen Wilbushewich, engineer and owner of Haifa General Ice Factory and Cold Storage Co., Palestine. Orthodox refrigeration plants need about 18 hours to produce the familiar household iceblocks—if there is no cut in the electricity supply.

"Rapid Ice" differs from the normal variety in that it is frozen at a lower temperature, forms smaller crystals, and, storing more cold in its structure, melts appreciably slower. In other words, more calories are needed to melt "Rapid" than ordinary ice.

The industrial production has been made possible by a new technique which Wilbushewich developed two years ago and which he has since improved.

The familiar ice-making method uses the evaporation of condensed ammonia to abstract heat from a body of water, but prevents it from freezing by the addition of salt. Into this subzero brine, a battery of metal moulds

is immersed in which water of about 25° freezes solid in approximately 18 hours.

The new technique eliminates the use of the cooling medium. The principle of ammonia evaporation is retained, but heat is withdrawn directly from the water in the freezing moulds, causing it to turn to ice very

ENGINEERS of Westinghouse Electric Corp. have developed an air-to-air heat pump and air conditioner. Still in the experimental stage, it may provide winter heating and summer cooling for mild-climate homes of the future.

The system is a completely selfcontained, packaged unit requiring only simple electrical connection, and a drain for condensed atmospheric moisture. When heating, air from the outside is circulated through a heat exchanger (evaporator) containing cold refrigerant This liquid absorbs heat liquid. from the warmer outside air, changes to a vapor in the process, and flows on to the compressor. The high-pressure, high-temperature vapor from the compressor flows to another heat exchanger (condenser), where the heat of compression plus the heat absorbed from the outside air are utilized to heat the home. When the outside air temperature is below 40 F electric strip heaters automatically warm the heat exchanger, to maintain it above frost temperatures. All this heat is also usable for space heating.

The heat pump becomes cooling air conditioner in warm weather. A single automatic thermostat effects the change from heating to cooling or vice versa without human attention. This dual function is accomplished, using no expansion or check valves, by the use of capillary tubes for expanding the refrigerant. The capillary tubes maintain the same flow characteristics with refrigerant flowing in either direction.

rapidly along the walls of the moulds and gradually freezing it in an inward direction. Besides, a thin pipe, branching off from the ammonia evaporation network, is introduced into each mould from above down the center.

The water is thus frozen simultaneously from without and within. When frozen solid, the ice blocks drop out automatically, loosened from their moulds by warm gas. When they come into contact with the air, the longitudinal holes down the axis fill up with water and soon freeze leaving the white ice block completely solid.

WINNERS IN WARREN CONTEST ANNOUNCED

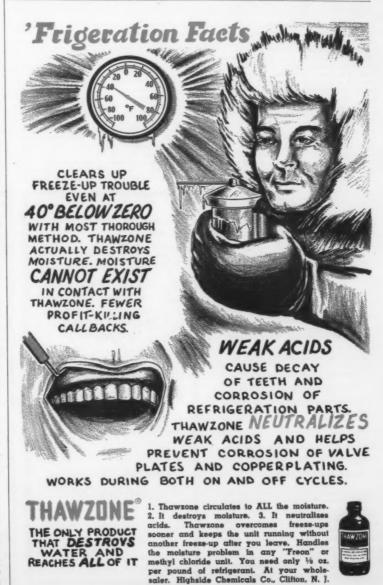
Top honors in the "Havana Bound" dealer sales contest conducted recently by the Warren Co., Inc., were won by M. E. Harrison of Ashland, Ky., a member of the Warren dealer organization only since March of last year.

For producing the highest percentage of quota in the contest, Harrison won for himself and Mrs. Harrison a week's sojourn in Havana.

Second prize in the sales contest, a 6 cu. ft. freezer, went to Grover C. Richey, Columbia, S. C. Winners of cameras in the national competition were B. R. Dennard, Pavo, Ga.; E. E. Sigmon, Charleston, W. Va.; Earl R. Hornaday, Mobile, Ala.; Marshall Sills, Augusta, Ga.; L. A. Dickens Co., High Point, N. C.; and Carl Dieter, Youngstown, Ohio.

CANNON SELLS CARRIER

The Cannon Distributing Co., Charleston, S. C., has been named distributor in the South Carolina territory for Carrier room air conditioners and dehumidification units.



Circle No. 66 on Reader Service Card for more information

Air Conditioning Cuts Photo Paper Loss



ADDITION OF AIR CONDITIONING has had a "plus" advantage for Acme Photo Supply Co., Limo, Ohio, over and above the normal advantages of increased store traffic, higher seles, less cleaning and general employee efficiency. The "plus" in this instance has been in preventing deterioration of the sensitized printing paper which constitutes a large percentage of the company's sales. This paper is dated by the manufacturer and must be destroyed or sold at greatly reduced prices after the stamped date. This calls for a close control of inventory, since it is equally important not to run out of paper by keeping inventories too low. Experience in a previous store, not air conditioned, was that out-dated paper had virtually no value; even when sold at reduced prices, customers weren't satisfied with it, and returns were high. Now the film stays in good condition even beyond the expiration date, and although it still must be sold below regular price, returns are no longer a problem. The store is served by a 5-ton Typhoon unit which maintains a year-round relative humidity of 50% in the summer by the five-row cooling coil and in the winter by means of a spray humidifier, solenoid valve and a modulating thermostat. Because of the expanse of single-glass display vindow across the store's front, finned tube radiation is used under the window to boost heat here and to keep windows from fogging in winter months because of high inside humidity. A side, grille cools a semi-enclosed office. Komminsk Refrigeration, Lima, installed the equipment.

REMODELING PAYS OFF FOR PHOENIX MARKET

Remodeling does pay. At least it paid off for Cris Wo, who this year bought and remodeled what is known as Phoenix Market No. 2, in Phoenix, Ariz. Prior to the remodeling, the highest month's gross was \$11,400—while the gross for the first 30 days after the remodeling was over \$20,000. A complete installation of new Sherer refrigerated display cases was part of the new program.

NEW HYDROGEN PLANT GETS SUNROC COOLERS

Announcement of a large order of Sunroc electric water coolers for the E. I. duPont de Nemours and Co.'s new Hydrogen Plant at Savannah River, was made by Joe T. Ward, New York division manager, Sunroc Co. Procurement was made through the New York architectural firm of Voorhees, Walker, Foley and Smith.

BUY FROM YOUR
REFRIGERATION WHOLESALER

LOOK to LARKIN

for Low Prices



LARKIN CEILING HUMI-TEMP

Price is only one factor in the selection of any product—especially one that has so important a task as protecting valuable perishables. Performance must come first. Quality cannot be overlooked. Durability is highly important. Larkin has all of these. And Larkin has low prices, too. Compare them and see for yourself how low they really are.

For the latest Larkin price list, see your wholesaler. If you wish, write direct to us and we shall be glad to send you one.

Menufacturers of the original Cross-Fin Coil — Humi-Temp Units — Evaporative and Air Cooled Condensors — Air Conditioning Units and Coils — Direct Expansion Water Coolers — Steel Vacuum Plate Coils — Heat Exchangers.

WATCHBOO OF THE NATION'S FOOD SUPPLY

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TO REPLACE

CARBON TET

FOR SHOP USE

SEE YOUR LOCAL JOBBER

Buy Peerless

for Condensate on Air Conditioners



The Peerless Drip-Pump solves the troublesome drainage problem—on air conditioners, coolers, refrigerators and other machines where condensate is present—by eliminating hazardous gravity drains altogether! The Drip-Pump lifts condensate up and out, overhead . . . saves valuable space.

Illustration shows Model DP-2 high capacity high lift pump for air conditioner applications. Also available is Model DP-1 packless centrifugal type pump, driven by "flea-power" motor . . . the ideal pump for use for dome, unit or flash coolers. Both models are ruggedly built for long, hard service; easily and quickly installed. Write for full information.

Peerless of America, Inc.

1501 No. Magnolia, Avenue Chicago 22, Illinois, U.S.A.

Circle No. 54 on Reader Service Card

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.00 minimum, limit 25 words. For all other classifications, \$4.50 minimum for 25 words or under, each additional word 15e; boldface type or all capitals, \$7.50 minimum for 25 words or under, each additional word 20e. Box addresses count as five words, other addresses by actual word count. All advertisements in this section are payable in advance.

POSITIONS AVAILABLE

DISTRICT SALES SUPERVISOR—Nationally known manufacturer of Commercial Refrigerators has attractive proposition for one or more aggressive supervisors for the Maryland, Delaware, Virginia and North Carolina territories. This advertisement should interest a younger sales-engineer desirous of building for the future or an experienced man desirous of making a change. Our products would fit very well into the selling plans of a man now having an allied but non-competing line. Our own personnel know about this advertisement. Please furnish details of experience, present connection, etc., in first letter. Address Box 1152, Commercial Refrigeration and Air Conditioning.

TRAINING AVAILABLE

Course on sealed unit rebuilding trade secrets disclosing exclusive methods for all operations. \$12.50 or write for details. H. Custer, Box 98, Center Line, Michigan.

FOR SALE

X13 TO REPLACE CARBON TET FOR USE IN THE SHOP, SEE YOUR LOCAL JOBBER.

BOOK REVIEW

Title: Air Conditioning in Summer and Winter.

Author: Richard E. Holmes, chief engineer, air conditioning and refrigeration div., Worthington Pump & Machinery Corp., and instructor, Northeastern University.

Publisher: McGraw-Hill Book Co., Inc., New York City.

Price: \$5.75.

This new 2nd edition of this practical reference book provides thorough coverage of equipment and procedures essential to efficient planning, installation and upkeep of air conditioning systems. It also supplies well-illustrated explanations of air conditioning principles and methods and shows how they are applied in everyday practice.

Topics of importance in solving both summer and winter air conditioning problems—the physiology of comfort, psychrometric principles and the kinds of equipment that are available—are discussed first.

Next, the special features of winter heating and control are analyzed: how to calculate winterheating loads, and how to install and maintain appropriate equipment.

The author then introduces refrigeration principles and equipment design, points out the differences between summer cooling-load calculations and winter heating-load calculations, and describes typical installations.



Food's mighty perishable. And costly, too. And the family's health is simply priceless. Your responsibility is to safeguard that food by replacing wornout motor capacitors without delay.



That's easy. Just ask your Aerovax distributor about Aerovax listings, the Capacitor Selector, and the Emergency Capacitor. They'll help you handle that replacement in a liffy.



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of expansion valves or capillary tubes!

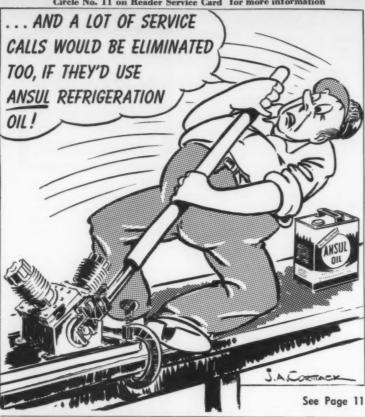
When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy . . ICE-X is non-corrosive—harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems . . Order from your jobber. If no jobber, order direct.

The HARRY ALTER CO. Distributor

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and AIR CONDITIONING . JANUARY, 1952

Service doesn't falter





Precision-built indicators provide accurate temperature readings.

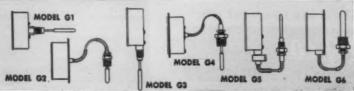
Low-cost protection . . . due to large, specialized production.

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6 stock types available as shown.

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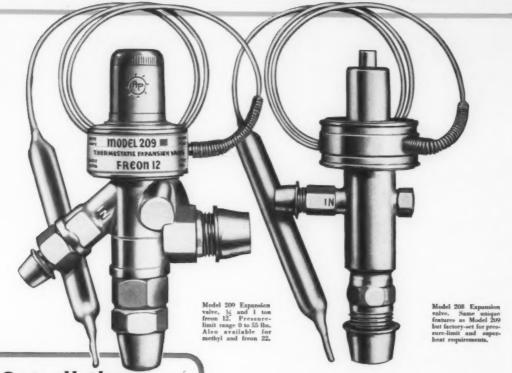
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Get all these...

Unique pressure-limit mechanism with ADJUSTABLE range of 0 to 55 lbs.

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Easily accessible superbeat adjustment covers entire normal operating range. Maintains close superheat control at any operating temperature.

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You'll have no expensive motor breakdowns due to overload when you use these new A-P worry-free expansion valves. By limiting operating suction pressure, they protect the refrigeration system from overloads due to abnormally high pressures during pull-down or peak-load periods. Model 209 is completely adjustable in the field for both pressure limit and superheat. Model 208 is "custom-built" for specific pressure limit and superheat requirements. No other thermostatic expansion valves offer you the features found in these revolutionary valves. Ask for Bulletin R-7 for full details,



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EQUIPMENT



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CREAC wholesalers don't specialize in any one industry, but cover every type of industry in their local area where there is a refrigeration and air conditioning problem.



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